OFFENDER MEMORIES OF THEIR CRIMES: EXPLORING THE FACTORS INVOLVED IN THE EXPERIENCE OF INTRUSIVE MEMORIES

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ABSTRACT

Objective: Limited research has examined perpetrator induced trauma symptoms in offender populations. The aim of the current study was to examine offenders' memories about their crimes, and explored potential factors involved in the experience of intrusive memories. **Method:** One hundred adult male offenders serving provincial sentences completed a questionnaire package examining offence-related shame, guilt, instrumentality-reactivity, psychopathy, and memory characteristics. This cross-sectional design relied solely on participant self-reports. **Results:** Forty-three percent of the sample reported experiencing intrusive memories of a crime they committed. Intrusive memories were experienced across all crime types. As expected, shame was found to be the most significant and accurate correlate of intrusive memories, over and above the other primary factors of interest in this study. **Discussion:** Findings suggest that a substantial number of offenders suffer from intrusive memories about their crimes. Results are in line with theoretical foundations of posttraumatic stress disorder, and are consistent with literature examining trauma symptomology in victim, first responder, and veteran populations. This study further demonstrates that the experience of offence-related symptoms like intrusive memories and shame are not limited to forensic psychiatric or homicide perpetrator samples. Enhancing knowledge about intrusive memories has important implications with regard to responsivity factors, as well as for assessment and treatment.

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DEDICATION

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Neufs, thank you for moving across the country with me so I could pursue my goals. Your endless support and patience have made this a smooth and exciting journey. Thank you for bolstering my confidence and independence, and for encouraging me to grow.

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Table of Abbreviations

Abbreviation	Explanation
AMQ	Autobiographical Memories Questionnaire
APA	American Psychiatric Association
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
EEQ	Emotional Experiences Questionnaire
IES	Impact of Event Scale
IM	Intrusive Memories (dichotomous measure)
I-ROQ	Instrumentality-Reactivity of the Offence Questionnaire
GBAI-R	Gudjonsson Blame Attribution Inventory – Revised
PTCI	Post-Traumatic Cognitions Inventory
PTSD	Posttraumatic Stress Disorder
REB	Research Ethics Board
SRP-SF	Self-Report Psychopathy Scale-Short Form
TRSI	Trauma Related Shame Inventory
TSC-40	Trauma Symptom Check-List 40

Note. All abbreviations listed also have explanations included in the text as they appear. The list includes alphabetized abbreviations that occur more than once in the text.

CHAPTER 1:

Offenders' Memories of Their Crimes: Exploring the Factors Involved in the Experience of Intrusive Memories

1.1 General Overview

Research on voluntary memories (deliberate remembering) has been conducted for centuries; however, the study of involuntary memories (spontaneous remembering) is lacking (Berntsen, 1996, 2009). A relatively new area of study is that of offenders' memories of their crimes (Christianson, 2007). The objective of the current study was to examine the combination of the two by exploring offenders' experiences of persistent and unwanted (also known as intrusive) involuntary memories about their own crime(s). It is of interest to examine these two areas together because, although offenders may suffer from intrusive memories (Evans, Ehlers, Mezey, & Clark, 2007b), there is little research on this topic. In recent years, offenders' intrusive memories have more generally been studied in the context of posttraumatic stress disorder (PTSD) (e.g., Gray et al., 2003; Papanastassiou, Waldron, Boyle, & Chesterman, 2004; Pollock, 1999; Rogers, Gray, Williams, & Kitchiner, 2000; Spitzer et al., 2001). Although the offender PTSD literature provides some insight into intrusive memories in this population, little research has examined the specific factors involved in their development and maintenance.

The aim of the current study was to explore how three factors (i.e., shame, instrumentality-reactivity of the offence, and recall perspective) influence offenders' experience of intrusive memories in relation to their crime. Although there is research examining certain aspects of these three factors (e.g., Budden, 2009; Evans, Ehlers, Mezey, & Clark, 2007a; Evans et al., 2007b; Libby & Eibach, 2002; Matos & Pinto-Gouveia, 2010; Robinaugh & McNally, 2010), there is a dearth of research examining the specific relationship between these factors and intrusive memories in an offender context. Some researchers in the area of offender PTSD have identified that trauma symptoms are a potential barrier in correctional treatment programs (Martin, Eljdupovic, Colman, Simpson, & McKenzie, 2014), and that PTSD, as well as related factors such as shame, are related to risk factors for future violence (Hosser, Windzio, & Greve, 2008; Kubiak, 2004). Enhancing knowledge about intrusive memories, and improving the ability to identify them in offenders, may inform clinical practice and has important implications with regard to reducing offender violence in institutions and in the community. In this dissertation, descriptions of involuntary and intrusive memories are first provided; next, the

offender literature examining intrusive memories is highlighted, and the potential factors involved in the development and maintenance of intrusive memories in offenders are explored. Finally, the current research is described and outlined. Results and a discussion of the findings follow.

1.2 Involuntary Memories

Ebbinghaus (1964) was one of the first to identify involuntary memories as distinct from voluntary memories. He described involuntary memories as occurring when "mental states once present in consciousness return to it with apparent spontaneity and without any act of the will" (p. 2). Berntsen (1996) more recently clarified the meaning of an involuntary autobiographical memory as a memory that is apparently not preceded by an attempt at retrieval, and instead is brought to consciousness spontaneously.

In 1996, Berntsen noted that, remarkably, cognitive psychologists have largely neglected studying involuntary memories, and that instead, clinical psychologists have essentially been responsible for research in this area. Cognitive psychologists have tended to focus on voluntary memories (i.e., remembering as a controlled and deliberate process; Berntsen, 2010), which are more easily studied in the laboratory; however, in the past 10-15 years, there has been an increasing number of studies exploring involuntary memories (Berntsen, Staugaard, & Sørensen, 2013). The initial paucity in research examining involuntary memories was due to the belief in cognitive psychology that involuntary memories are rare. Recent studies, however, have found that involuntary memories are not rare, and are in fact common for even non-traumatic experiences (e.g., Berntsen, 1998; Berntsen & Hall, 2004; Brewin, 2014a; Kvavilashvili & Mandler, 2004; Rubin & Berntsen, 2009).

Berntsen (1996, 1998, 2010) and her colleagues (e.g., Berntsen & Hall, 2004; Berntsen & Rubin, 2002; Staugaard & Berntsen, 2014), as well as a few other researchers (e.g., Ball & Little, 2006; Brewin & Soni, 2011; Mace, 2004, 2005, 2007; Schlagman & Kvavilashvili, 2008; Verwoerd & Wessel, 2007), have studied the phenomena of involuntary memories and explored how such memories may be elicited. Berntsen (2010) claims that both voluntary and involuntary memories operate via the same episodic memory system, and that remembering for both types of memory is universal (everybody has them) and frequent (they occur in daily life). Autobiographical memory (voluntary and involuntary) is formed by facts about ourselves and our past (autobiographical knowledge base), and involves the *working self-concept* which

comprises a set of active goals and self-images (Conway, 2005). Autobiographical memory includes abstract memories, but also consists of more detailed sensory-perceptual information. When we recall an event, it is the sensory detail that typically makes the memory feel 'real' (like it was something actually experienced). According to Conway (2005), the process of recalling such detail, and remembering it, is based on what he calls *autonoetic consciousness* – the capacity to reflect on our thoughts. This autonoetic consciousness embodies self-awareness, and allows for the reflection of episodic memory content. Rubin and Berntsen (2009) suggest that both voluntary and involuntary memories are affected similarly by mechanisms related to encoding and maintenance of information in memory, and that recall of past events is predicted by the same memory characteristics, such as emotional intensity and significance to life story (i.e., the event is relevant to the person's identity and life events/script). For example, events that change aspects of our life (e.g., going to jail) and/or have strong emotionality to them (e.g., committing a violent crime) are likely to be better remembered both voluntarily and involuntarily than events that are not emotionally charged or significant to our life (Berntsen, 1996; Conway, 2005; Mace, 2004). This relationship between memory and emotion has been coined the *emotional enhancement effect* (Hamann, 2001), whereby emotions are a product of amygdala activation, and this activation can allow for consolidation (via more rehearsal and elaboration) of emotional experiences relative to more neutral information or experiences (McGaugh, 2004; Sharot & Yonelinas, 2008; Staugaard & Berntsen, 2014).

As noted above, voluntary and involuntary autobiographical memories are believed to involve similar mechanisms of encoding and maintenance of information. Differences between these two types of memory are instead explained in terms of their different retrieval mechanisms – associative versus strategic recall (Berntsen et al., 2013; Rubin & Berntsen, 2009). Voluntary remembering is strategic and goal directed, and is a process that requires executive functions to monitor the search process. On the other hand, involuntary recall is an associative process, in that retrieval of a memory is related to the presentation of an associated stimulus or response. Specifically, the associative explanation of memory retrieval is instigated or triggered by an associated situational cue that was present at the time of encoding (Berntsen, 2010; Ebbinghaus, 1964). As such, involuntary memories reported by individuals tend to have particular identifiable cues (e.g., activity, object, person, conversation, sensory experience, feeling, life theme), and tend to involve peripheral aspects of the individuals' environment (Berntsen, 1996,

2009; Mace, 2004). Berntsen (2009) suggests that involuntary memories, which are triggered by cues that tend to elicit emotions, exert more emotional impact than voluntary memory. Although the specific type of emotion felt at the time of the involuntary memory is not always congruent with the emotion experienced during the past event (e.g., anger felt when remembering vs. fear experienced at the time of the event), Berntsen (2009) found that the *valence* tends to be congruent, whereby the valence of the current mood is a predictor of the emotional valence of the memory. For example, although anger and fear are technically different emotions, they are both negatively valenced, and this valence is what seems to be consistent between the event and the memory of it. In addition to Berntsen's findings regarding the connection between the valence of mood and memory, Schlagman and Kvavilashvili (2008) found that voluntary and involuntary memories differed in terms of the emotional valence of the cues. Specifically, they found that involuntary memories were more likely to be triggered by negative cues (than by either positive or neutral cues), whereas cue valence did not have any effect on the likelihood of retrieving voluntary memory. In addition, there was a high correspondence between the emotional valence of these cues and emotional valence ratings of both these participants' voluntary and involuntary memories (Schlagman & Kvavilashvili, 2008).

Involuntary memories are predominantly of unusual/distinct events (Berntsen, 2009) and this finding is perhaps because of their deviation from everyday scripts or self-concept and the degree of emotionality involved. Berntsen and colleagues (2013) have reported that participants experience more involuntary memories in response to unique cues (which are only presented once), whereas more voluntary memories are elicited via repeated cues (which are presented several times). Berntsen et al. (2013) suggest that the frequency of involuntary memories in response to unique cues relates to the notion of cue overload (informational overlap between cue and event), whereby the likelihood of a cue providing access to a given target memory depends on the extent to which this cue is uniquely associated with that initial memory. When the cue becomes associated with other memories as well, it becomes more general; thus, its strength for triggering involuntary memories declines and it is instead more likely to elicit voluntary recall (Berntsen et al., 2013). This idea of cue uniqueness/distinctiveness relates to the connections between emotional valence, script-deviation, and memory. Specifically, both valence and script-deviation of the initial memory, and the associated cue, heighten the distinctiveness and

relevance of the cue for the individual, which results in the elicitation of more involuntary memories.

In summary, involuntary memories have been identified in the literature as universal, and occur as frequently as voluntary memories (Berntsen, 2010). Involuntary autobiographical memories are believed to result from the same episodic memory system (i.e., same basic encoding and maintenance mechanisms) as voluntary memories; however, their retrieval mechanisms differ (associative retrieval from cues/triggers vs. strategic retrieval). Involuntary memories tend to be distinct in terms of factors relating to their cue-specificity, relevance to their life-story/script, and their emotional impact at recall (Berntsen, 2009). Under normal circumstances involuntary memories are not typically stressful or repetitive; however, they have the potential to become dysfunctional (Ball & Little, 2006; Berntsen, 2010; Mace, 2007), which is discussed in the following section.

1.3 Intrusive Memories

Intrusive memories may best be considered as an "anomalous subclass of involuntary memories in general" (Berntsen, 1996, p. 450) or as an "extreme manifestation of a possible normal function of involuntary memories" (Schlagman & Kvavilashvili, 2008, p. 929). As an extreme subclass of involuntary memories, intrusive memories are defined as recurrent, distressing, and involuntarily triggered autobiographical memories of a specific event or incident that happened at a particular time and at a particular place (American Psychiatric Association, 2013; Evans et al., 2007a; Reynolds & Brewin, 1998). It is these repetitive and distressing features, and a desire to avoid them, that make intrusive memories stand out as a subclass of involuntary memories (Berntsen, 1996; Kvavilashvili, 2014).

As noted above, cognitive psychologists had, until more recently, neglected examining involuntary memories. Instead, much of the literature in this area was conducted by clinical psychologists who explored the relationship between involuntary memories and trauma. Specifically, clinical psychologists have largely been studying *intrusive memories* as a hallmark symptom of PTSD (APA, 2013). Studying intrusive memories in the context of PTSD has provided an important platform for understanding the effects of trauma on individuals and has led to advances in treatment options to remedy its associated symptoms. That being said, although intrusive memories are a core symptom of PTSD, they are also found in individuals who do not meet the full criteria for the disorder (Michael, Ehlers, Halligan, & Clark, 2005). In

practice, clinical psychologists explain symptoms by disorders, and have organized clusters of symptoms into disorders (Borsboom & Cramer, 2013). This classification system (e.g., Diagnostic and Statistical Manual of Mental Disorders, DSM-5) has been useful in creating a common language for clinical practice and research (Hyman, 2010), but has also limited the exploration of the underlying variables/symptoms. As such, to date there is relatively little known about the subjective experience of intrusive memories, and it is important to study these symptoms beyond the PTSD diagnosis per se, and consider intrusive memories in the general context of autobiographical memory and life events.

The clinical literature indicates that there are different types of intrusive cognitions (e.g., memories, thoughts). Intrusive memories are distinct from ruminative/intrusive thoughts found in disorders such as depression, in that memories are briefer and contain more sensory information and detail (Speckens, Ehlers, Hackmann, Ruths, & Clark, 2007). Although individuals with depression, eating disorders, anxiety disorders, or bipolar disorder may experience intrusive cognitions (for reviews see Brewin, Gregory, Lipton, & Burgess, 2010; Steel & Holmes, 2007), the term "intrusive memories" itself, only falls under the DSM-5 criteria of "intrusion symptoms" for PTSD (APA, 2013). PTSD is a trauma-and-stressor-related disorder that usually occurs after an individual is exposed to threatened death, injury, or violence; and it involves the presence of intrusive symptoms and an attempt to avoid associated stimuli, as well as negative alterations in cognition and mood (APA, 2013). Flashbacks are also classified as intrusion symptoms in the DSM-5. The term flashbacks captures intrusive memories that specifically involve vivid "re-experiencing" of the incident.

Immediately following a traumatic event, PTSD symptoms are a common experience for many people (Ehlers, 2010), and the presence of intrusive memories can be a sign of a "normal adaptation" (Ehlers & Clark, 2000; Ehlers & Steil, 1995). Specifically, intrusive replaying of trauma in dreams and while awake allows the human mind to covertly rehearse alternative responses, and contemplate the overall unpleasantness of the situation, so that avoidance or escape from the life-threatening situation becomes more likely if encountered again. Although intrusive memories are common after trauma, many people recover from having these memories within a few months (Ehlers & Clark, 2000). For others, these memories can often persist for years (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). Intrusive memories can lead to impaired functioning, such as sleep disturbances,

irritability, and dysfunction in relationships and employment (Ehlers & Clark, 2000; Ehlers & Steil, 1995).

The recurrent and persistent nature of some traumatic memories can be explained as a consequence of the enhanced accessibility of the event in autobiographical memory (Berntsen & Rubin, 2008). Memory for traumatic events tends to be highly accessible for both involuntary and voluntary recall due to a variety of interacting factors (Berntsen, 2009). One such factor is the level of emotion experienced at the time of the event (McGaugh, 2004; Staugaard & Berntsen, 2014). Berntsen (2001) suggests that the distinct impact of traumatic events on memory may be due to the severity of the event and consequences related to it. Voluntary recall is guided by our self-schema and, accordingly, this type of recall favors events that are consistent with knowledge that is central in our life (Conway, 2005). On the other hand, events that clash with our schematic knowledge are not as easily retrieved voluntarily. Instead, schema-deviant events tend to provide distinctive content that becomes associated with situation-specific cues, and, thus, are more likely to be recalled involuntarily (Berntsen, 2010). As a subclass of involuntary memories, memories that tend to become intrusive are most often related to the emotional impact of the specific event, and these memories are often accompanied by the same original emotional valence as that experienced during the traumatic event (Berntsen, 1996; Ehlers & Clark, 2000). Specifically, intrusive memories often consist of stimuli that were present right before the traumatic event (Ehlers et al., 2002) or during (Berntsen & Rubin, 2008) those moments that had the largest emotional impact. The interplay and combined effects of cue uniqueness and emotion on involuntary recall across time seems central to the development of intrusive memories of stressful or traumatic events (Staugaard & Berntsen, 2014). Specifically, Staugaard and Berntsen (2014) found that memories of emotional scenes become more accessible than memories of neutral scenes over time. This relationship between emotion and time lapse is consistent with the emotional enhancement effect (Hamann, 2001) described earlier, whereby longer retention intervals allow for greater consolidation of emotional scenes (due to amygdala activation) relative to neutral scenes (McGaugh, 2004; Rubin & Wenzel, 1996; Sharot & Yonelinas, 2008; Staugaard & Berntsen, 2014).

Factors like emotionality and schema-deviance that augment the encoding and maintenance of information in memory, enhance the accessibility of traumatic memories relative to memories of other autobiographical events, and this accessibility in turn enhances the

relevance of external cues and triggers (Berntsen, 2009). Intrusive memories could be triggered by a wide range of stimuli related to the traumatic event, for example: physical cues similar to those present shortly before or during the traumatic event (e.g., location, the physique of a person, spatial cues, smells, a certain tone of voice), similar emotional states (e.g., feeling helpless or scared) or other similar internal cues (e.g., being touched on a certain body part) (Ehlers & Clark, 2000). Situational cues vary in content and intensity, therefore, different aspects of the same event may come to mind in response to different environmental features (Berntsen, 2001, 2009). Consistent with the claim that involuntary and intrusive memories are triggered by sensory cues, the actual content of intrusive memories (including feelings of re-experiencing the trauma) often consists of sensory experiences that are associated with these cues (Ehlers & Clark, 2000). Intrusive memories can involve different types of sensations including physical impressions, but are predominantly visual in nature (Ehlers & Steil, 1995; van der Kolk & Fisler, 1995) and often take the form of brief fragments of the traumatic experience (Brewin, Dalgleish, & Joseph, 1996; Pollock, 1999). For example, a man who was in a head-on motor vehicle collision repeatedly sees headlights coming towards him as he had seen them shortly before his collision (Ehlers & Clark, 2000). In this example, the emotion related to the vehicle collision was likely fear, and it is probable that a visual cue, such as a bright light, triggers the thought of having seen on-coming lights prior to the traumatic collision. Experiencing this intrusive memory would associatively involve a negative feeling (e.g., fear or anger).

In conclusion, intrusive memories, such as those observed in individuals following their experience of a stressful or traumatic event, therefore may be viewed as a "malignant effect of normal mechanisms of involuntary memories" (Berntsen, 1996, p. 435). Specifically, the memories of emotional events become more accessible (due to combined effects of cue uniqueness and emotional enhancement), compared to the involuntary retrieval of more unremarkable or normal events (Staugaard & Berntsen, 2014).

In these sections above, intrusive memories were described as a subtype of involuntary memories, and an introduction into what they are and how they may come about was provided. We know that the schema-deviance and the distinctiveness of the event, combined with cue uniqueness and emotional enhancement, are central to the development of intrusive memories of stressful or traumatic events. In an attempt to further explain how involuntary memories can

become intrusive (i.e., how they develop and are maintained psychologically), we must draw on the available clinical literature which provides useful insight via PTSD. This discussion of intrusive memories within theoretical explanations of PTSD is presented below.

1.3.1 Theoretical Foundations of Intrusive Memories in PTSD

The literature exploring involuntary memories is largely founded in clinical research that studied intrusive memories in the context of PTSD symptomology (APA, 2013; Brewin et al., 1996). A number of theories have been proposed over the years to explain how and why PTSD develops, such as: Mowrers' Two-Factor Learning Theory (Mowrer, 1960); the Reappearance Hypothesis (Neisser, 1967); the Stress Response Model (Horowitz, 1976); and the Warning-Signal Hypothesis (Ehlers et al., 2002), to name a few. The three most prominent current theories, Emotional Processing Theory (Foa & Kozak, 1986), Dual Representation Theory (Brewin et al., 1996), and the Cognitive Model (Ehlers & Clark, 2000), all draw on much of the earlier PTSD work and are widely accepted and empirically supported. These three theories are described below.

1.3.1.1 Emotional Processing Theory (Foa & Kozak, 1986). This theory draws on Lang's (1977) work on the informational-processing of fear, which focused on the encoding, storage, and recall of fear-inducing events and their associated stimuli and responses. Specifically, according to Lang (1977), a fear structure is a network in memory that includes information about the feared stimulus situation, information about the verbal, physiological, and behavioral responses, and interpretive information about the meaning of the stimulus and responses. Foa and Kozak (1986) highlight that the development of PTSD symptoms is related to the meaning of the event, as interpreted by the individual. For example, it is the information regarding danger that violates a person's formerly held basic concept about safety. According to this theory, an intrusive memory is a distressing memory of an event that is accessed when a fearful individual is presented with benign information (e.g., a cue or trigger) that matches the information structure in memory.

Drawing from Lang's work, Foa and Kozak (1986) propose that how one copes with fear responses (i.e., escape or avoidance) depends on his/her degree of emotional processing (the interpretation of the fear – i.e., danger or threat). When fear is realistic, it can be viewed as normal and the fear structure provides information about how best to respond to the threat. However, when information in the fear structure does not realistically portray the world, and

avoidance responses are elicited by harmless stimuli that are perceived as dangerous, then the fear structure becomes a problem (Foa & Kozak, 1986). The fear structure of individuals with PTSD is thought to include excessive stimulus and response elements, as well as elements with pathological meanings (Foa & Rothbaum, 1998). Specifically, it has been suggested that the fear structures of individuals with PTSD include two basic cognitive distortions that are involved in the development and maintenance of these symptoms. These include the belief that the world is a dangerous place and the negative view of the self as incompetent at coping (Foa & Rothbaum, 1998).

Emotional processing theory provides the PTSD literature with an underlying conceptualization of how symptoms such as intrusive memories are maintained via fear, and introduces the mechanisms required to change this fear and overcome the distressing memories. Emotional processing specifically involves a change in the fear structure (i.e., the modification of thought structures that underlie the emotion). This change process involves the initial activation of the fear structure (e.g., intrusive memories) combined with the incorporation of corrective information that is incompatible with some aspects of the fear structure. The fear structure can be changed and fear reduction can occur via exposure therapy, which involves physiological habituation and changes in valence (Rauch & Foa, 2006). A reduction in symptoms, such as intrusive memories, can be achieved through exposure therapy by way of modifying the fear structure with corrective information. This process results in the person being less afraid or emotional the next time he or she faces that memory or trigger (Rauch & Foa, 2006). If a fear response is still being elicited, then it suggests that emotional processing has not been successfully completed (Foa & Kozak, 1986; Foa & Rothbaum, 1998; Rauch & Foa, 2006). The development and maintenance of PTSD symptomology is a result of the failure to fully process the traumatic memory(s). In other words, individuals who systematically avoid trauma-related memories, feelings, and activities do not have the opportunity to experience, and therefore integrate, disconfirming information into their minds to challenge the pathological elements and distortions (Rauch & Foa, 2006).

1.3.1.2 Dual Representation Theory (Brewin et al., 1996, 2010). In contrast to the other prominent theories of PTSD, Brewin and colleagues' (1996) theory is largely founded in memory research. Brewin et al. (2010) more recently revised the 1996 dual representation theory of posttraumatic stress disorder to place it within a neural systems model of healthy memory and imagery.[1] This revised theory identifies different types of memory processing that can occur simultaneously. These two distinct types of memory systems proposed are *contextual memory* (C- memory) and *sensation-based memory* (S- memory). The C-memory (previously known as *verbally accessible memory* – VAM; Brewin et al., 1996) system supports abstract declarative representations within their associated autobiographical context. Representations of C-memory, referred to as C-reps, can be accessed both involuntarily and voluntarily, and support integration with previous knowledge. The S- memory system (previously known as *situationally accessible memory* – SAM; Brewin et al., 1996) encompasses representations (referred to as S-reps) that are closely bound to sensory and affective qualities. Sensory and physiological aspects of the traumatic experience represented in the S-reps are triggered involuntarily by "matching inputs" (cues or reminders of the original event) without retrieval of the appropriate autobiographical context.

From the dual representation perspective, Brewin and colleagues (2010) suggest that emotional processing will first involve the creation of an enduring S-rep by an extremely emotional or stressful event, combined with an absence of integration with a corresponding C-rep, and thus a lack of appropriate contextualization for this S-rep. In other words, flashbacks in PTSD involve visual imagery and result from the creation of a strong emotional S-rep without the usual association to a corresponding C-rep (i.e., reactivation occurs without reference to the encoding context or associated autobiographical knowledge) (Brewin et al., 2010). Brewin and colleagues also propose that exposure treatment, as well as imagery re-scripting techniques, can be beneficial in the treatment of PTSD according to their dual representation theory. In short, they suggest that exposure to trauma cues, and the opportunity to reconstruct them with an alternative (more positive) outcome, can facilitate the transfer of S-reps into more elaborated C-reps that can be integrated with existing autobiographical memory. The integration of C-reps

[1] The revised model is concerned with a broader spectrum of visual intrusions occurring across different disorders (Brewin et al., 2010). For the purpose of this paper, only Brewin et al.'s discussion of intrusive memories will be described.

can then allow for the contextualization of the memories, and a decrease in the spontaneous retrieval of negative sensations (Brewin et al., 2010).

1.3.1.3 Cognitive Model (Ehlers & Clark, 2000). This model draws heavily on some of the theories mentioned above (Brewin et al., 1996; Foa & Kozak, 1986; Horowitz, 1976). The cognitive model suggests that PTSD symptoms, such as intrusive memories, persevere when individuals process the trauma in a way that is indicative of a threat. According to Ehlers and Clark (2000), the sense of threat arises as a consequence of two processes.

The first process involves the appraisal of the trauma and its consequences. People who experience intrusive memories are likely to have negative appraisals of the event and create a sense of threat that may be external or internal. An external threat tends to involve overgeneralizations or exaggerations (e.g., "the world is a more dangerous place" or "bad things always happen to me"), which generate situational fears and avoidant behaviors that in turn maintain this overgeneralized fear. An internal threat relates to how the individual felt or behaved during the event, specifically creating a threat to how he or she might otherwise view him or herself as an acceptable person who is capable of achievement. These conflicting beliefs or views of the self are best explained by the cognitive dissonance literature (Festinger, 1957), whereby a negative state or emotion results from a disconfirmation of an expectation about one's self or the environment. Examples of internal threats can include appraisals concerning responsibility for the traumatic event or its outcome (e.g., "It was my fault" or "I deserve that bad things happen to me"), appraisals concerning a violation of important core moral standards (e.g., "I did something disgraceful"), and appraisals concerning perceived loss (e.g., "My life will never be the same again" or "My personality has changed for the worse"). A sense of internal threat can also come from individual differences in the appraisals of consequences of trauma, like experiencing intrusive memories, and the beliefs surrounding that experience particularly if they do not consider these symptoms part of the normal coping process (e.g., "I'm going crazy" or "I'll never get over this"). All of these kinds of negative appraisals maintain the presence of intrusive memories by producing negative emotions like anger, anxiety, sadness, or shame, and by encouraging dysfunctional coping strategies (i.e., suppression), which paradoxically reinforce the symptoms (Ehlers & Clark, 2000). Cognitive-based treatments for trauma symptoms, therefore, seek to 'correct' these appraisals in individuals by minimizing or removing cognitive dissonance through reappraisal/reframing of the event and related emotions.

The second process involves the nature of the memory for the event and its connection to other autobiographical memories. These authors suggest that intrusive memories are driven by the fact that the trauma memory is poorly elaborated and inadequately integrated into its context (i.e., in time, place, and circumstances) and into other autobiographical memories. Specifically, according to Ehlers and Clark (2000), poor elaboration and integration leads to a weak semantic route to retrieval, such that physical cues often lead to unintentionally recalled memories of sensory information. Stimuli present before or during the traumatic event become associated with a prediction of threat or danger, and these feelings can be easily re-triggered by external physical cues. Poor elaboration and integration also results in an absence of the link to previous and subsequent information or autobiographical memories, such that the person ignores contradictory information and does not make logical connections between the feeling of threat and the fact that he is actually still alive (i.e., "I did not die") (Ehlers & Clark, 2000).

1.3.1.4 Commentary on the theoretical explanations of intrusive memories in PTSD. Much of the trauma memory literature, including the theories discussed above, suggests that the nature of the trauma memory depends on the quality of processing at encoding (see also Krystal, Bennett, Bremner, Southwick, & Charney, 1995; Schacter, Norman, & Koutstaal, 1997; Siegel, 1995). The discussions of dual systems, poor integration, processing failure, and compromised encoding in the trauma literature have more recently been challenged by Berntsen (see Berntsen, 1996, 2001, 2009, 2010; Berntsen & Rubin, 2008). Specifically, Berntsen has challenged prior PTSD theories by suggesting that they all take a *special mechanism* view (i.e., they all assume that encoding of the traumatic event is faulty), and she proposes that they are incorrect in taking this view. Instead, as noted in the involuntary and intrusive memories sections above, Berntsen (2009) suggests that involuntary and voluntary memories do not differ in terms of encoding and maintenance mechanisms, but rather in terms of retrieval (associative vs. strategic recall), and proposes a *basic mechanism* account of memory.

Brewin (2014a) more recently attempted to address the debate in the literature surrounding the idea of special vs. basic mechanisms in memory for traumatic/emotional events. He recognized that both accounts of memory are "equally grounded in a broad appreciation of human memory phenomena" (p. 89). That being said, the special mechanism view stems from clinical research on PTSD, and the theories are influenced by the fact that they are couched in clinical psychology. Specifically, they have been influenced by clinical psychology's distinction

between normal and abnormal, and clustering and pathologizing symptoms into specific diagnoses (APA, 2013; Borsboom & Cramer, 2013; Hyman, 2010). These theories tend to view trauma symptoms as 'abnormal' or 'problematic' and cluster them as diagnostic criteria for PTSD. As such, the special mechanisms view has been outlined in an effort to offer an explanation of the symptoms of the disorder and develop treatment for these symptoms (Dalgleish, 2004). On the other hand, the basic mechanisms view stems from naturalistic and experimental research on memory, and aims to provide a broad understanding of memory in diverse contexts, including traumatic events (Dalgleish, 2004). This view outlines intrusive memories as 'extreme manifestations' and seeks to explain how they come to be. Brewin (2014a) suggests that the differing findings between the special and basic mechanism view largely rest on these different theoretical and methodological approaches. He ultimately concluded that, although there may be different theoretical emphases, there is no definite distinction between special and basic mechanisms (Brewin, 2014a). In other words, there is still much we do not know or understand about how memory behaves; and thus, Brewin suggests that instead of framing questions in terms of special/basic mechanisms, we should simply continue to explore how ordinary memory mechanisms operate under various circumstances.

Despite their theoretical differences, there has been widespread agreement regarding certain concepts of PTSD symptomology. For example, there is shared belief that PTSD is associated with the involuntary intrusion of vivid memories containing large quantities of sensory detail (Brewin, 2014a). Another common principle among PTSD researchers and cognitive researchers is that intrusive memories develop as a result of the intensity and consequences of the event, and the incompatibility of the appraisal and the meaning of the information with pre-existing schematic beliefs and moral standards (Berntsen, 2010; Brewin et al., 1996; Ehlers & Clark, 2000; Ehlers, 2010; Foa & Kozak, 1986; Horowitz, 1976; Meichenbaum, 1996; Rauch & Foa, 2006). The incompatibility is best explained in terms of cognitive dissonance, whereby there is a discrepancy between an individual's behavior and his or her wish to conform to their desired self-image and values (Festinger, 1957). This discrepancy has been associated with emotions of shame or guilt regarding an event, and is linked to the distressing and recurring nature of these memories, which in turn results in maladaptive cognitive strategies to abate these feelings (i.e., suppression and avoidance) (Rauch & Foa, 2006). The intrusive nature of the memory and the unpleasant emotions that tend to be

associated with the traumatic memory, often lead individuals who are suffering to try to push recollections of the traumatic event out of their minds. This suppression, paradoxically, has been shown to enhance rather than reduce accessibility of memories (Wegner, Schneider, Carter, & White, 1987), and increases the impact of the trauma on the individuals (Ehlers & Clark, 2000). Avoidance is another maladaptive cognitive strategy that is often used by individuals who are experiencing intrusive memories, and which also paradoxically leads to the maintenance of these PTSD symptoms (Ehlers & Clark, 2000; Horowitz, 1976). People may avoid anything that causes negative or positive feelings about the event, such as places, clothing, activities, friends, etc. Avoiding reminders of the traumatic event often prevents the possibility of correcting the appraisal of the event and changing the meaning of the event in the person's world-view, thereby increasing the persistent and recurrent features of these memories.

These theories that have been put forth in the PTSD literature further highlight how intrusive memories are developed and maintained. Specifically, there is agreement amongst researchers that intrusive memories occur, in part, as a result of the emotionality of the event, and the meaning of the event as interpreted by the individual. More specifically, fear and threat (internal and external) are common feelings that occur at the time of the event (and continue after). How the event is then perceived (distinctiveness), appraised or given meaning (morals- or schema-deviant), and how the individual subsequently copes with it (e.g., with or without avoidance/suppression) will determine the accessibility of the memories and their influence. Involuntary memories are often sensory in nature, and can become intrusive via recurrent and distressing associative cues and triggers.

Experiencing intrusive memories can result in feelings of anger, anxiety, and shame, which in turn reinforce the maladaptive coping strategies mentioned above. Therefore, regardless of which view is taken (special or basic mechanism), the implications for treatment are similar – minimize avoidance and enhance emotional processing of the event. There are also a number of other factors that have been found to play a role in the development of PTSD and in the maintenance of intrusive symptoms. These include individual factors (e.g., IQ, personality; Brewin & Soni, 2011; Buckley, Blanchard, & Neill, 2000), social factors (e.g., family and community function/support, stress related to losses, roles and relationships; Andrews, Brewin, & Rose, 2003; Bisson, 2009), biological factors (e.g., fear and recall processes in higher-order brain regions – amygdala, hippocampus; Shin et al., 2004), and historical factors (e.g., childhood

trauma or past victimization; Briere, Agee, & Dietrich, 2016).

In summary, we know a considerable amount about intrusive memories. That being said, much of these details have come from literature examining victims of crime, war veterans, first responders, and laypersons, and there is little known about intrusive memories in perpetrators of violence, such as offender populations. This issue is explored next.

1.4 Offenders and Intrusive Memories

Offenders' intrusive memories have been more generally studied in the context of PTSD. Prevalence rates of PTSD and associated symptoms in violent offenders are higher than rates found in the general population (6.8%), occurring in 11-58% of cases (with the higher rates found in mentally ill offenders; Beaudette, Power, & Stewart, 2015; Gray et al., 2003; Kessler et al., 2005; Papanastassiou et al., 2004; Pollock, 1999). In the past few decades, researchers have started asking how much of offenders' PTSD is linked to offenders' memories of their own crimes, and they have found that, indeed, offenders experience PTSD symptoms related to their own offence(s) (Chung, Di, & Wan, 2016; Harry & Resnick, 1986; Musker, 2013; Papanastassiou et al., 2004; Pollock, 1999; Spitzer et al., 2001; Welfare & Hollin, 2015). For example, Spitzer and colleagues (2001) investigated the frequency of traumatic events, PTSD, and sub-syndromal variants, in 53 forensic psychiatric patients (96% male). Interestingly, their findings revealed that the patient's own criminal offence was among the most common topics of intrusive memories reported by patients. Other common topics included childhood sexual or physical abuse, rape, torture, witnessing something distressing, and neglect (Spitzer et al., 2001). More recently, Musker (2013) examined PTSD in 39 forensic psychiatric patients (82% male). Participants in that study identified on average eight major stressful events, with 41% relating their most common suffering to the offence they committed. Pollock (1999) also studied PTSD in 80 male perpetrators of homicide, specifically looking at how characteristics of the offence itself and of the offender contribute to the development of these symptoms, and found that 52% of the total sample of offenders met criteria for PTSD. Chung and colleagues (2016) similarly found that 44% of their sample of male perpetrators of homicide met the criteria for PTSD related to their offence, and 13% met criteria for partial-PTSD. Welfare and Hollin (2015) examined childhood trauma and offence-related trauma in 34 young male offenders convicted of serious violent offences or murder, and found that 44% of offenders reported distressing intrusion symptoms related to their offence. A total of 42% with serious violent offences and

50% with murder offences reported varying levels of traumatic symptomatology related either to their childhood or to their offense (distinctions were not reported between these two 'causes' of trauma).

Evans and colleagues (2007a, 2007b) have focused specifically on the topic of offenders' intrusive memories (largely focusing on young offenders), and report that there is a need for more studies examining offenders' experiences of intrusive memories. In one of their studies Evans et al. (2007b) found that the intrusive memories reported by male violent young offenders were reminiscent of those reported by victims of trauma (and consistent with the description of intrusive memories above). Specifically, these offenders' intrusive memories included: (i) a predominance of sensory detail such as vivid visual images, sounds, and other sensations; (ii) a sense of time distortion, such that the memories seemed to be happening in the present rather than the past; (iii) a tendency to be triggered involuntarily by specific reminders that relate in some way to the circumstances of the assault; and (iv) an associated high level of distress. The intrusive memories reported in Evans et al. (2007b) also corresponded to parts of the event that these offenders described as being out of their control, threatening, or distressing (i.e., when the meaning of the event changed dramatically for the worse for them), and to parts of the event that were perceived by these offenders to be a moral breach (i.e., moral breach stood out with significance to them; e.g., victim was undeserving).

Findings from these studies discussed above suggest that the crime, and the act of committing it, can itself be traumatizing to offenders and result in intrusive symptomology. This idea is akin to the recent research examining 'perpetrator induced trauma' and 'moral injuries' in veterans who killed or committed violence during combat (Jordan, Eisen, Bolton, Nash, & Litz, 2017; Litz et al., 2009; MacNair, 2015; Maguen et al., 2011; Nash et al., 2013). This literature speaks to the development of PTSD symptomology from exposure to events that may be traumatic, but not in the theoretically traditional sense of involving threats to life and safety; but rather, because these actions involved violations of deeply held beliefs and values. Therefore, events associated with perpetration and moral injury are not chiefly based on fear, but on other cognitions and emotions, such as shame (Litz et al., 2009). Although noting the theoretical difference between symptoms developing as a result of victimization and threats to safety, and those due to committing acts of violence or crime, the emotional and cognitive models of PTSD (Ehlers & Clark, 2000; Foa & Kozak, 1986) are still useful in shedding light on the impact of

perpetrator induced trauma. Specifically, these negative self-appraisals, attributions and dissonance about the event and an individual's actions during the crime or violence, serve to create and maintain feelings like shame. Litz and colleagues (2009) also suggests that actions during a violent event and the related sensory components may produce distress "comparable to consequences of direct life threat" (p. 696). Avoidance behaviors and emotional numbing are then often (mal)adapted to deal with these 'moral injuries' and the meaning of the event, subsequently maintaining or reinforcing these feelings and related symptoms (e.g., intrusive thoughts and memories about the violence or crime; Litz et al., 2009).

1.4.1 'Messiness' of Trauma

As noted earlier, prevalence rates of PTSD and associated symptoms in offender populations are higher than rates found in the general population – and this often encompasses incidents of past victimization or trauma. For example, Ardino, Milani, and Di Blasio (2013) examined exposure to child abuse and neglect, as well as the presence of PTSD symptoms, in a sample of 75 offenders (67% male). Findings revealed that the majority of participants experienced childhood abuse and neglect, and approximately 15% of their sample had a history of sexual assault (Ardino et al., 2013). Wolff and Shi (2012) similarly found high rates of childhood and adulthood trauma in their sample of 3,986 male incarcerated offenders. Specifically, rates of physical, sexual, and emotional trauma ranged from 44.7% physical trauma in childhood to 4.5% sexual trauma in adulthood (Wolff & Shi, 2012). For populations, such as veterans and offenders, it can be challenging to tease apart trauma symptoms that arise from witnessing or being a victim of violence, from symptoms arising from perpetrating violence. This speaks to the 'messiness' of trauma (which is also pertinent in victim populations who have previous victimizations). Briere and colleagues (2016) explored this 'messiness,' specifically examining the role between exposure to different types of traumatic events and PTSD in a sample of community individuals and in a sample of incarcerated offenders. These researchers found that a higher number (frequency count) of different types of trauma across a lifetime was associated with PTSD in both the general population and offender samples. Specific findings speak further to a cumulative/compounding effect of trauma, whereby those participants in the offender sample with only one type of trauma exposure had a 17% percent likelihood of current PTSD, whereas those exposed to six or more other trauma types had a 64% chance of PTSD (Briere et al., 2016).

Given this significant occurrence of previous victimization, combined with trauma related to offending behavior(s), cumulative trauma is likely pertinent when examining offender populations. Indigenous populations, who are over-represented in the Canadian correctional system (Public Safety Canada, 2015), have historically experienced decades of trans-generational trauma (re: colonization, and residential schools), which compounds this cumulative effect of trauma even further. When conducting research examining intrusive memories in an offender population, it can be hard to piece out trauma memories/triggers related to an offence versus past victimization or offending, and as such, researchers must be cognisant of the 'messiness' of trauma when interpreting findings.

Although acknowledging the 'messiness' described above, the literature clearly identifies that offence -related intrusive memories are something with which offenders "suffer." Their experiences of intrusive memories are consistent with the earlier descriptions of involuntary and intrusive memories. In addition, it has been demonstrated that young offenders' experiences are akin to those found in studies examining victims of trauma. These research findings discussed thus far hint at the significance and relevance of certain factors in the development of offenders' intrusive memories. Specifically, it is known that deviations from moral standards or life-script (i.e., cognitive dissonance about the self with regards to the event) are important in the development of intrusive memories. The discomfort in reconciling this dissonance is related to shame, and shame has in fact been highlighted in the victim literature as a relevant factor in PTSD (e.g., Andrews, Brewin, Rose, & Kirk, 2000; Budden, 2009). This connection has also been found in veterans of war who committed violence during combat (e.g., "moral injury" linked to PTSD; Litz et al., 2009). However, the role of shame in the development of intrusive memories in offenders, is unknown, as it has not yet been directly explored in this population. The development of intrusive memories is also recognized to be related to the distinctiveness and emotionality of the event, and there has been speculation in the literature about how this relates to the type of crime (reactive/instrumental) committed by the offender (e.g., Pollock, 1999). That being said, little is actually known about the connection between the type of crime and trauma symptomology, as well as how this connection relates to shame. Lastly, although it is understood that the development of intrusive memories has to do with the way the event relates to the self, in terms of life-scripts and appraisals of self, it is not yet known how the offender's perception of self relates to the recall perspective taken in recalling the offence. Specifically, it

is unclear if the role of self-appraisals and the experience of intrusive memories relate to whether offenders would be more likely to see themselves in the memory of the event, or if they would be removed from it and view the offence from the perspective of an outsider.

In summary, three important factors, shame, the instrumentality-reactivity of the offence, and recall perspective, have yet to be examined in terms of their relationship with offenders' intrusive memories. These findings above highlight that the topic of offenders' intrusive memories is a relevant and worthy area for exploration to further our understanding of it and its consequences. Specifically, it is valuable to enhance our knowledge about intrusive memories in adult offenders by exploring these three factors. A better understanding of factors involved in offenders' intrusive memories may result in an improved ability to identify intrusive memories and to target them in treatment, with larger implications related to reducing offender violence in institutions and in the community.

1.5 Factors that May Influence Offenders' Intrusive Memories

The section below outlines the literature on two individual differences factors, shame and instrumentality-reactivity of the offence, that might influence offender intrusive memories. These nuances are explored next, whereas the subsequent section will explore the relationship between recall perspective and intrusive memories.

1.5.1 Shame

The concept of shame has been around for centuries, and the roots of the word are thought to derive from an Old English word meaning "to cover" (Lewis, 1971). In the nineteenth century, Darwin (1872/1965) discussed shame in terms of embarrassment, relating it to how others see us (i.e., external appearances). A long standing, and widely accepted, definition describes shame as an involuntary state of disappointment, and a feeling of deficiency of self, or defeat, in response to a perceived moral transgression (Lewis, 1971). As such, it is a painful emotion that often leads to a desire to escape or hide (Lewis, 1971; Tangney, 1995). The experience of shame requires consciousness and the cognitive capacity of objective self-awareness – specifically, shame is an evaluative emotion whereby the "source of the shame is our thoughts about ourselves" (Lewis, 2003, p. 1186). Lewis (2003) suggests that shame is a feeling driven by attributions of self in the context of specific standards (e.g. rules, goals, morals). Some standards are more valuable, or are given more weight, than others – and it is the violation of those standards that are more central to the definition of self that will most likely

lead to feelings of shame. Taken together, people experiencing shame tend to evaluate the violation or transgression as being indicative of a self that is fundamentally flawed, and internalize this feeling (Dearing & Tangney, 2011).

The terms *guilt* and *shame* are often used interchangeably or in similar contexts; however they are in fact distinct (Lewis, 1971; Tangney, Miller, Flicker, & Barlow, 1996). Guilt involves how one feels about what one did (i.e., concerns a specific action), whereas shame concerns one's entire self, and is consequently related to feelings of worthlessness and powerlessness (Lewis, 1971; Lewis, 2003). The terminology of guilt and shame is further distinguished by the negatively valenced self-evaluation associated with shame (Tangney, 1995; Tangney, Stuewig, & Mashek, 2007). Given its primary concern with one's self and core identity, shame has been found to be more pathogenic, negative, and destructive than guilt (e.g., Robinaugh & McNally, 2010). Guilt on the other hand, is generally less painful and devastating because it does not directly affect one's core self-concept (Tangney et al., 1996). Experiencing shame also has been linked to blame (i.e., internalizing the disapproving judgment of others), feelings of anger and aggression, lacking empathy (due to preoccupation on self), and the withdrawal from others (Parker & Thomas, 2009; Tangney et al., 1996). In contrast, guilt involves internal evaluation within one's own sense of self, feelings of empathy and regret, taking responsibility for actions/consequences, and taking corrective actions (Parker & Thomas, 2009).

Shame has been linked to anger. Specifically, shame has been identified as part of an affective constellation of anger-sadness-shame (Lewis, 1971; Piers & Singer, 1953; Teyber & McClure, 2011), whereby anger may be the most predominant state. This anger is a secondary feeling in response to sadness, which in itself is a secondary response to the original experience of shame. In other words, shame is often a vulnerable underlying state, that, when avoided, is instead expressed through sadness and anger. As such, intrapersonal and interpersonal difficulties can develop as a result of shame (Dearing & Tangney, 2011), and this becomes of particular interest when considering institutional violence and recidivism in offenders (Hosser et al., 2008; Martin et al., 2014). Tangney and colleagues (1996) suggest that "clinicians might well consider cognitive interventions that aim to transform maladaptive shame reactions into more functional guilt reactions" (p. 1267). Although working towards reducing shame to guilt may seem unorthodox, the importance of identifying and thus targeting shame in general is

imperative (Parker & Thomas, 2009). The relevance of shame in the context of offenders' intrusive memories is examined below.

1.5.1.1 Shame and offenders' intrusive memories. Drawing on all the literature discussed above, it may be that when the offender's actions/crime do not fit with his or her schematic sense of self, that will result in feelings of shame, and will be distressing to him. In turn, he or she will attempt to suppress these memories to avoid such feelings, causing these memories to become recurrent and intrusive. Relating this process to the cognitive dissonance literature, the conflicting beliefs or behaviors related to committing a crime likely produce a feeling of discomfort (e.g., shame). This discomfort leads to an adjustment in beliefs or behaviors, such as avoidance, to reduce the discomfort and restore balance (Festinger, 1957). If an individual fails to minimize cognitive dissonance through reappraisal, shame can become increasingly pathogenic and may be related to maintained intrusive symptoms. On the other hand, having just world beliefs (Lerner, 1980; Lerner & Miller, 1978) may serve as a protective factor to offenders' appraisals and feelings of shame (i.e., experience less shame). For example, these individuals may be more likely to feel happy that they got caught, that their sentence is justified, report better well-being, and may be less likely to cause institutional disciplinary problems (Dalbert & Filke, 2007). Although it is thought that many offenders may be bothered by their crime, some offenders may instead have pride for their action in a crime and experience no shame for it. This absence of shame may be tied to a preferred antisocial moral code and values, which will be explored later in the context of psychopathy.

There is limited research exploring these suppositions proposed above, and only a few studies have suggested that feelings of shame may be involved in offenders' experiences of intrusive memories. For example, Gray and colleagues (2003) examined the frequency of offence-related PTSD symptoms in a sample of mentally ill offenders. They found that offenders who believed that their victims did not deserve the assault scored higher on measures of intrusive memories and avoidance. In addition, results showed that the frequency of PTSD symptoms was greater in offenders who felt regret for their actions. Regret is in the same family of emotions as shame and guilt; however, regret is distinct in that it is largely a grieving reaction about wanting another chance to do something differently (Roseman, Wiest, & Swartz, 1994). In addition, the destructive condemning judgements about the self that are central to shame are not part of regret (Roseman et al., 1994). Although Gray and colleagues (2003) did not examine

shame directly, they proposed that shame may have played a role in offenders' reports of intrusive memories and feelings of undeserved assault and regret, and they suggested that measures of shame should be included in future research. Similarly, Crisford, Dare, and Evangeli (2008) examined guilt cognitions and trauma symptomatology related to perpetrating a violent offence in a sample of mentally disordered offenders. They found that higher levels of offence-related trauma symptomatology were associated with higher levels of offence-related guilt cognitions. Although shame was not assessed in their research, Crisford and colleagues suggest that shame may be associated with the variance in PTSD symptomatology over and above what was accounted for by guilt in their study. Given that shame is often closely linked with both guilt and trauma, Crisford and colleagues suggest that future research should measure both shame and guilt. Evans and colleagues (2007a) investigated which factors determine whether perpetrators of violent crime develop intrusive memories of their offense. Of the 105 young offenders who were convicted of killing or seriously harming others, 46% reported distressing intrusive memories. Intrusions were associated with lower antisocial beliefs before the assault, greater helplessness, fear, dissociation, data-driven processing and lack of self-referent processing during the assault, more disorganized assault recalls, a greater negative view of the self, negative interpretations of intrusive memories, perceived permanent change, and self-blame (Evans et al., 2007a). A number of these factors are consistent with the earlier description of intrusive memories, relating specifically to cognitive dissonance, violating moral standards, script/schema-deviant events, sensory thoughts, and negative appraisals. Here again, it seems that shame is a crucial emotional response to these violations/deviations, and as such may be an important underlying factor of intrusive memories. This connection has been made, and is widely accepted, in the general PTSD literature (Andrews et al., 2000; Budden, 2009; Robinaugh & McNally, 2010); however, it only has been alluded to, or made reference to, in prior offender PTSD research (Crisford et al., 2008; Evans et al., 2007a; Gray et al., 2003).

Given that shame has not garnered much direct attention (in terms of being directly studied or measured) in offender research on PTSD or intrusive memories, the aim of the present study was to address this gap in the literature by examining the connection between shame and intrusive memories in offenders in the context of their crimes. A better understanding of shame in the context of offenders' intrusive memories could provide insight regarding offender well-being, as well as treatment readiness and rehabilitation. An offender's emotional response to his

crime, and his related experience of intrusive memories, is likely linked to the distinctiveness and emotionality of the act itself. This speaks to the type of crime that occurred, and this is discussed next.

1.5.2 Instrumentality-Reactivity of the Offence

Researchers have long been differentiating between two types of violence – an emotional/impulsive type, and a more "cold-blooded" premeditated type (e.g., Berkowitz, 1989; Feshbach, 1964). Drawing on this earlier work, Cornell et al. (1996) coined the now popularized distinction of *reactive* vs. *instrumental* violence. According to these authors, instrumental crime is more goal-directed (e.g., for money, possessions, and/or sexual gratification) and planned/prepared, or opportunistic. Instrumental crime is typically externally motivated by these goals, and tends to lack both provocation by the victim and self-reported anger (internal motivation) at the time of the offence. In addition, instrumental crime tends to involve a victim who is unknown to the offender. This type of crime has been previously found to be typical of offenders who are high in psychopathy (Cornell et al., 1996; Pollock, 1999); however, this claim has more recently been refuted (Blais, Solodukhin, & Forth, 2014). The idea that offenders high in psychopathy may be more willing to engage in criminal behavior for instrumental purposes is related to the idea that they seldom commit violent crimes under the influence of intense emotional arousal (Williamson, Hare, & Wong, 1987). In contrast, reactive crime is internally motivated, and is characterized by emotional arousal and a sense of impulsivity (absence of planning or premeditated goal). Reactive crime often involves evidence of victim provocation (real or perceived), and the offence is consequently an expression of anger resulting from the provocation. Although the reactive-instrumental distinction has been made and is widely accepted, some crimes may include both reactive and instrumental components (Cooper & Yuille, 2007; Cornell et al., 1996). For example, a planned robbery may involve a reactive assault depending on how the victim reacted to the event. Reactive crime evidently holds an emotional component that is distinctive to the individual. Given the relationship between emotionality, event distinctiveness, and the development of intrusive memories, it is of interest to explore how the type of crime committed relates to offenders' intrusive memories.

1.5.2.1 Instrumentality-reactivity of the offence and offenders' intrusive memories.

Cooper and Yuille (2007) studied affect and memories for violence, specifically examining the quality of memories (in terms of vividness, details, coherence, etc.) for both reactive and instrumental acts of violence. They found that instrumental violence was better recalled than reactive violence, and they suggest that this finding is due to the "egosyntonic" nature of the former (i.e., positive valence experienced at the time of the event, and actions that are consistent with the offender's world view). Memories for reactive violence, on the other hand, are "egodystonic" (i.e., experienced with negative valence, and actions that are inconsistent with the offender's world view). These results regarding the lower quality of negatively valenced and script-deviant memories are somewhat contradictory to the memory literature discussed above. These authors, however, do not make a distinction between voluntary and involuntary memories. Their study examined offender accounts from voluntary memories; had they examined involuntary/ intrusive memories, they may have found that reactive violence is recalled just as well as instrumental violence. Specifically, the egodystonic nature of reactive violence is consistent with the factors previously described, which increase the likelihood that an event is remembered involuntarily and intrusively (e.g., schema-deviant, breach of moral standards and life script, and emotionality).

This idea that reactive violence would be remembered involuntarily and intrusively is illustrated in some of the offender PTSD literature. For example, Pollock (1999) found that reactive violence was associated with 95% of the PTSD identified in his offender sample. Gray and colleagues (2003) further suggested that planned vs. impulsive crimes may be relevant to the development of offence-related trauma symptoms, but this hypothesis was outside the scope of their research and was not examined. A case study by Kruppa (1991) described the psychological assessment and treatment of a sex offender who experienced intrusive memories of a homicide he had committed. She suggests that the behavioral loss of control reported by the offender led him to be vulnerable to developing intrusive memories. These examples highlight that the impulsive and emotional components of reactive violence may make the crime more likely to be experienced as traumatic. Specifically, the behavioural loss of control reported by offenders during a reactive crime parallels a schema-deviant context that conflicts with moral standards, which may lead the offenders to be vulnerable to the development of intrusive memories (Pollock, 1999).

The schema-deviant element to reactive violence, and associated experience of intrusive memories, may be related to shame. Although the connection between shame, schema-deviant events, and intrusive memories has been recognized in the literature, there is little research examining how the type of crime influences this connection in offenders. Pollock (1999) provides some interesting support for the idea that the relationship between the instrumentality-reactivity of the offence and shame plays a role in the development of intrusive memories. Specifically, his results indicated that offenders identified as "psychopaths" were more likely to commit instrumental violence, and were also the least traumatized by their offence. Given that psychopaths are known to possess characteristics contrary to shame, such as glibness, lack of remorse, and lack of empathy, this finding creates an intriguing connection, whereby psychopathy may serve as a protective factor against intrusive memories (Pollock, 1999). The act of instrumental violence and the lack of shame in offenders high in psychopathy also has been found in a larger body of literature (e.g., Cornell et al., 1996; Porter & Woodworth, 2007; Williamson et al., 1987), and the idea that psychopathic offenders are relatedly less likely to be traumatized by their offence provides a glimpse into the potential relationship between shame and the instrumentality-reactivity of the offence.

Although reactive violence has been related to experiencing trauma related/intrusive memories, no study to-date has explored the link between shame and reactive violence in the development of intrusive memories. An aim of the current study was to gain a better understanding of this relationship to inform treatment and management of offenders (e.g., treatment planning, risk assessments for custody and release or probation decisions) based on the types of violence committed. As noted earlier, the offenders' perceptions about the schema-deviant element of the event is related to the instrumentality-reactivity of the offence, and their pursuant experience of intrusive memories is likely linked to the overall emotional response to the event. This theory speaks to the offenders' life-script and how they perceive themselves in the event, which is discussed next in the context of recall perspective.

1.6 Recall Perspective and Emotionality of Event

Events may be remembered from two points of view (Nigro & Neisser, 1983). One is from a first-person or field perspective, whereby people recall an event as if relived through their own eyes looking outward (i.e., they do not see themselves in the memory, they are just recalling the memory as they experienced it). The other perspective involves recalling an

autobiographical event from a third-person or observer perspective, whereby people look at the situation from an external vantage point (like a bystander) and see themselves "from the outside" as actors in the memory (Nigro & Neisser, 1983, p. 1). It has been demonstrated that when a person is trying to remember feelings, he or she is more likely to take a field perspective than a person who is trying to recall more concrete and objective situations (Nigro & Neisser, 1983). That being said, Nigro and Neisser suggest that events involving high degrees of emotional self-awareness (e.g., giving a public presentation, or running from a threatening situation) may be experienced and recalled from an observer perspective. Other research has found that people tend to use the observer perspective when visualizing thoughts of actions or events that conflict with their current self-concept (e.g., Libby & Eibach, 2002). In this latter context, it appears that the observer perspective operates as a distancing mechanism, whereby the person perceives his or her conflicting past self as different from his or her current self (Wilson & Ross, 2003). This view is akin to early interpretations made by Freud (1899/1950), whereby he suggested that people mask deep emotional conflicts by taking an observer perspective when recalling a memory.

1.6.1 Intrusive Memories and Recall Perspective

The idea of the observer perspective serving as a distancing mechanism, particularly when there is a conflict with the self-concept, is relevant when considering the significance of schema-deviance and emotionality in the development of intrusive memories. This relevance has been evidenced in research examining trauma memories, whereby participants are more likely to use the observer perspective when recalling traumatic events, particularly in the context of intrusive memories (e.g., Berntsen, Willert, & Rubin, 2003; Porter & Birt, 2001). Berntsen and colleagues (2003) suggest that the traumatized person develops a need to distance him- or herself from the painful experience of reliving the event, and therefore is motivated to use an observer perspective in remembering. Although distancing via the observer perspective has been found to help keep emotions at bay, it also serves as emotional avoidance. In the context of PTSD, avoidance can paradoxically enhance the impact of the intrusive memories (Ehlers & Clark, 2000). According to these findings, taking the observer perspective when recalling a traumatic event is associated with a poorer prognosis. Perhaps adopting a field perspective instead would allow individuals to process emotions associated with the event rather than avoid them (Brewin & Holmes, 2003).

The relationship between recall perspective and the combination of emotional self-awareness during the event, and the deviant nature of the event in terms of self-concept and life-script, appears to be relevant to the experience of intrusive memories. Emotions such as shame can lead individuals to cope via suppression or avoidance attempts, and shame itself also has a role in the recall perspective taken. Robinaugh and McNally (2010) examined the role of shame on recall perspective and the influence of these factors on emotional intensity of the event and PTSD symptoms in a sample consisting of primarily student participants. Contrary to the connection noted above between avoidance and observer perspective in recall of intrusive memories, Robinaugh and McNally (2010) found that PTSD symptoms were associated with high emotional intensity recalled from the field perspective, and that this association was attributable to the heightened centrality of the memory to self-identity and autobiographical recall. Robinaugh and McNally (2010) suggest that the perspective taken at recall is indicative of the congruence between these participants' identity and their memory for the shame provoking event. Specifically, participants recalling shame from the observer perspective rated the memory as having less personal coherence, and reported lower psychopathology. Although there are mixed findings regarding emotionality, the role of avoidance, and which perspective is more likely to be taken, there is agreement in the literature in terms of the significant role of *how* the self is viewed (in terms of life-script, schema-deviance, and self-concept) and the development on intrusive memories. An aim of the current study was to further explore the direction of the association between recall perspective and intrusive memories. The direction of this association was supplemented by also exploring the effects of the instrumentality-reactivity of the offence (in terms of its congruency with life-script), and shame (in terms of its congruency with self-concept) on the perspective taken. This is an area of research that needs further study, and an area that has yet to be explored in the context of offenders' intrusive memories.

CHAPTER 2: The Current Study

2.1 Rationale

Offenders' memories about their crimes, in general, tend to only be of interest for risk assessment, trial, or accountability purposes (i.e., admitting commission of the offence, and/or claims of amnesia about the offence). Beyond this use, offenders are infrequently asked about memories of their crimes. The topic of offenders' intrusive memories about their crimes is fairly new. Most of the past research in the area of offender PTSD or intrusive memories has been conducted in forensic psychiatric samples, young offender samples, and/or has focused specifically on violent offences (see Table A.1 in Appendix A). This past research, along with the trauma literature on student, victim, tsunami survivor, veteran, and first responder populations, has contributed to our understanding of intrusive memories. Factors such as shame, the instrumentality-reactivity of the offence, and recall perspective may be relevant to how offenders experience intrusive memories; however, there is still much we do not know in terms of how these variables relate to each other in this population. The goal of the current study was to examine these factors in relation to intrusive memories in a correctional sample of male offenders and across different types of offences. Through the research questions below, the aim of the current study was to gain a better understanding of offenders' intrusive memories about their crimes. Although it has been identified in past research that some offenders experience trauma symptomology with regards to their crime(s), these related memories are not typically discussed or addressed in correctional settings. Enhancing knowledge about intrusive memories, and improving the ability to identify them in offenders, may serve to inform clinical and correctional practices, as well as offender treatment readiness, within institutions across the country.

2.2 Research Questions and Hypotheses

Eleven specific research questions were addressed in this study. Each of these questions are listed in turn below and are organized according to their particular topic of interest. Specifically, the first research question pertains to describing offenders' intrusive memories; the second set of research questions explores the factors (predictors: shame, guilt, instrumentality-reactivity of the offence) that influence intrusive memories (criterion); the third set comprises secondary questions of interest regarding the relationship between these different factors and possible secondary relationships to these (e.g., psychopathy, institutional violence); and the last

set of research questions explores the recall perspective taken for emotional events. These research questions are followed by their accompanying hypotheses.

2.2.1 Description of Offenders' Intrusive Memories

1. Question: What is the prevalence of intrusive memories reported in this sample of adult male offenders? If they report intrusive memories, then what will they report in terms of triggers, sensory components, and distress? It was expected that:
    a. Approximately 35 to 50% of the sample would report intrusive memories, specifically reporting distressing, recurrent, and involuntarily triggered memories about their crime (Evans et al., 2007b; Gray et al., 2003; Musker, 2013; Pollock, 1999; Spitzer et al., 2001; Welfare & Hollin, 2015).
    b. Intrusive memories would involve a sensory component and would be triggered by cues related to the crime (Ehlers & Clark, 2000; Evans et al., 2007b).
    c. Intrusive memories would have an impact on those individuals experiencing them. Specifically, these memories would be related to a high level of stress and to avoidance symptoms. Individuals with intrusive memories would also likely feel like the event is a central part of their life story, and feel like they are reliving it (Ehlers & Clark, 2000; Robinaugh & McNally, 2010).

2.2.2 Factors that may Influence Offenders' Intrusive Memories

2. Question: How do feelings of shame and guilt regarding the offence relate to offenders' intrusive memories? It was hypothesized that:
    a. Feelings of shame and guilt would be positively correlated with one another and with intrusive memories (greater reports of shame and guilt would be related to more frequent reports of intrusive memories) (Gray et al., 2003; Robinaugh & McNally, 2010).
    b. There would be no association between guilt and intrusive memories after controlling for the effects of shame (Crisford et al., 2008; Robinaugh & McNally, 2010).
3. Question: How does the kind of crime committed relate to offenders' intrusive memories? It was hypothesized that:
    a. Intrusive memories would be reported across all offence types (Gray et al., 2003).
    b. Offences that were more reactive in nature would be positively correlated with reports of intrusive memories (Gray et al., 2003; Kruppa, 1991; Pollock, 1999).

c. The more reactive the offence, the more shame would be experienced, and that both of these factors would lead to the development of intrusive memories, whereby shame would mediate the relationship between the instrumentality-reactivity of the offence and intrusive memories.

4. Question: What role do emotions and avoidance play in intrusive memories? It was anticipated that:
    a. Higher ratings of emotions at the time of the offence would be related to more serious avoidance symptoms. Similarly, the higher the rating of stress regarding the event, the more avoidance reported (Ehlers & Clark, 2000; Horowitz, 1976).
    b. The reported stress rating of the event would be positively related to intrusive memories, and this relationship would be mediated by avoidance response/coping (Ehlers & Clark, 2000; Foa & Kozak, 1986).
5. Question: Which factors emerge as the most significant predictors of intrusive memories? It was anticipated that:
    a. Given the hypothesized roles of shame, guilt, and reactive violence, shame would emerge as a significant predictor of intrusive memories over and above the other factors.
6. Question: How accurately can we predict the occurrence of intrusive memories using the variables of interest in this study?
    a. Post-hoc investigations would further examine the relationship between all relevant primary and secondary variables explored, specifically assessing their accuracy in predicting intrusive memories in this adult offender population.

2.2.3 Secondary Questions of Interest

7. Question: What role do intrusive memories and related factors have in the occurrence of institutional violence? It was hypothesized that:
    a. Offenders experiencing intrusive memories would be more likely to display irritability and anger in the form of institutional violence (Ehlers & Clark, 2000; Ehlers & Steil, 1995).
    b. Offenders reporting higher levels of shame would have higher rates of institutional violence (Hosser et al., 2008).
8. Question: Is self-reported psychopathy related to institutional violence? It was expected that:

a. Given the facets of psychopathy and their relationship with violence and recidivism, higher levels of psychopathy would be positively related to counts of institutional violence (Hare & Neumann, 2009).

9. Question: What role does psychopathy play in intrusive memories and related factors? It was hypothesized that:
    a. Higher psychopathy scores would be related to lower levels of shame and guilt (Cornell et al., 1996; Williamson et al., 1987).
    b. Higher psychopathy scores would be related to offences that are more instrumental in nature (Cornell et al., 1996; Pollock, 1999; Williamson et al., 1987).
    c. Given the anticipated relationships between psychopathy, the instrumentality-reactivity of the offence, and guilt/shame, psychopathy may potentially serve as a protective factor for intrusive memories, whereby higher scores on the psychopathy measure would be inversely related to intrusive memories.

2.2.4 Recall Perspective Taken for Emotional Events

10. Question: What role do emotions and avoidance play in recall perspective?
    a. There are mixed findings regarding emotionality, the role of avoidance, and which recall perspective is more likely to be taken when remembering an event (Berntsen et al., 2003; Porter & Birt, 2001; Robinaugh & McNally, 2010). As such, the relationship between these variables was explored, but specific hypotheses about these relationships were not made.
11. What perspective is taken when recalling intrusive memories?
    a. Offenders may take the observer perspective when describing the crime as a form of cognitive avoidance to distance themselves from the difficult experience (Berntsen et al., 2003; Porter & Birt, 2001). That being said, perhaps the failure to adopt an observer perspective is what makes memories increasingly distressing, whereby higher distress and shame would be expressed in the field perspective (Robinaugh & McNally, 2010). Due to the mixed findings in the literature, the specific direction of the relationship between intrusive memories and recall perspective was not hypothesized.
    b. The directionality of the relationship between recall type and intrusive memories may depend on the offender's coping mechanisms (whether attempts at avoidance are

made). Given the theoretical relevance of emotion in the relationship between recall perspective and intrusive memories, it was also anticipated that this relationship may be mediated/moderated by the emotions during and after the offence.

2.3 Method

In this section, methodological considerations and the overall procedure are outlined. Specific demographic characteristics of the sample, as well as feedback solicited from participants, are provided.

2.3.1 Participants

The study sample consisted of 105 male[2] offenders who were provincially sentenced (i.e., up to a maximum of two-years less a day), and who were serving their time at the Saskatoon Provincial Correctional Center, the Urban Camp Program, or the Community Training Residence, in Saskatoon, Saskatchewan. Two offenders chose to discontinue their participation while we were going over the instructions to identify which crime to focus on, in that they both decided they did not want to disclose the crime (one had not been convicted of it yet, and the other reported shame and difficulty discussing it). A third offender chose to discontinue, stating that he was bored and the questions made him feel like he was back in school. The researcher terminated collection with two other participants – one was low functioning who did not seem to understand the purpose of the study or the questions, and the other who was quite tangential and could not stay on task to provide an answer to the questions after repeated efforts to redirect him. With the exclusion of these five individuals, the final sample consisted of 100 participants.

See Table 2.1 for a summary of demographic information for the total sample, and for those who endorsed experiencing intrusive memories. Overall, participants in the final sample ranged in age from 18 to 61 years, their racial background was mixed, they focused on diverse offence charges, had overall low levels of education, and some offenders reported being involved in incidents of violence (ranging from 1 to 17 incidents). A number of participants reported having received a mental health diagnosis (e.g., Bipolar, ADHD, Depression, Anxiety, Substance Use Disorder, and PTSD).

[2] Housed in a male correctional centre – but two of these 'males' were transgender

Table 2.1

Sample Demographics for the Total Sample & for Participants with Intrusive Memories

	Total (N = 100)		Participants with Intrusive Memories (N = 43)	
Age	*M* = 34.17 (*SD* = 10.47) Range: 18-61		*M* = 35.93 (*SD* = 11.21) Range: 18-59	
	n	%	n	%
Racial background				
Indigenous (Métis, First Nations, Inuit)	58	58%	19	44%
Caucasian	39	39%	22	51%
Other	3	3%	2	5%
Education				
Less than High School	47	47%	17	39%
Completed High School (or equivalent)	29	29%	14	33%
Attended some university or college	16	16%	9	21%
Completed university or college degree	8	8%	3	7%
Mental Health Diagnosis	26	26%	15	35%
Offence Discussed				
Property Offences	29	29%	11	26%
Motor Vehicle Offences	21	21%	9	21%
Offences of Violence	27	27%	13	30%
Sexual Offences	7	7%	4	9%
Drug Offences	6	6%	3	7%
Weapons Offences	5	5%	1	2%
Administration of Justice Offences	2	2%	1	2%
Homicide	3	3%	1	2%
Institutional Violence	27	27%	12	29%
Age of Memory				
Within last 2 years	63	63%	32	72%
3–10 years ago	20	20%	6	14%
11–27 years ago	15	15%	4	9%
Drugs or Alcohol During Offence	25	25%	14	33%

2.3.2 Materials

A questionnaire packaged compiled of various measures (totalling 213 items), described below, was used to gather information regarding the variables of interest (see Appendices F-O). The package provided to participants also included consent and debriefing forms (see Appendices C and D).

2.3.2.1 Impact of Event Scale (IES). This 15-item questionnaire was developed by Horowitz, Wilner, and Alvarez (1979) to measure subjective distress related to a specific event. All items of the IES were anchored to a specific stressor (e.g., the offence), and participants were asked to rate items on a 4-point scale according to how often each has occurred since the offence in question happened (0 = *not at all*, 1 = *rarely*, 3 = *sometimes*, and 5 = *often;* see Appendix F).

The IES is comprised of two subscales. The first subscale examines the extent to which memories intrude, and includes seven items that measure intrusive symptoms (intrusive thoughts, nightmares, feelings, and imagery). For the purpose of the current study, the intrusion subscale was used as a continuous measure of intrusive memories, with higher scores indicating a higher frequency/severity of intrusive symptoms. The other subscale examines the extent to which the individual tries to exclude the memories from consciousness, and includes eight items that measure avoidance symptoms (numbing of responsiveness, avoidance of feelings, situations, and ideas). This two-factor structure has been found to be stable over different types of events and can discriminate between stress reactions at different times after the event (Sundin & Horowitz, 2002). Both subscales have demonstrated good internal consistency (intrusions $\alpha = .86$, avoidance $\alpha = .82$), and are moderately (.63) correlated (Sundin & Horowitz, 2002). In Horowitz and colleagues' (1979) study, the mean intrusion subscale score for their stress clinic patient sample was 21.0 for both men and women, while the mean for their medical student sample was 2.5 for males and 6.1 for female students. Stress clinic patient means on the avoidance subscale were 35.3 for male patients and 42.1 for female patients, while medical student means were 6.9 for male students and 12.7 for female students.

The two subscales combined provide a total subjective stress score, with higher scores indicating a greater impact of the event. The IES provides a continuous measure of frequency of intrusions and avoidance that allows for these symptoms to be identified even in sub-clinical populations. It has been suggested that the total scores can be interpreted as follows: A score of 27 or more suggests that there is a 75% chance of PTSD (Coffey & Berglind, 2006). Those with

scores in this range who do not have full PTSD may have partial PTSD or at least some of the symptoms. A score of 35 and above has been suggested to represent a cut-off for a probable diagnosis of PTSD (Neal et al., 1994). Briere and Elliott (1998) collected normative data on the IES from a large sample of individuals from the general population. Individuals with a history of trauma had mean IES total scores of 16.7, 7.0 and 8.5 for the intrusion and avoidance subscales, respectively. The IES has been used with most trauma populations, and it is one of the most widely used instruments to measure trauma symptoms (e.g., Foa & Rothbaum, 1998). There is also evidence for the IES's convergent validity with observer-diagnosed PTSD.

2.3.2.2 Autobiographical Memories Questionnaire (AMQ). This 15-item questionnaire assesses a variety of memory characteristics, including sensory details, emotional intensity, coherence with personal life-story, and involuntary nature (with scale values varying per item; Rubin, Boals, & Berntsen, 2008; Rubin, Schrauf, & Greenberg, 2003; see Appendix G). The criteria in this questionnaire have demonstrated high reliability (α = .84 to .96) (Rubin et al., 2003). The areas assessed by the AMQ have been found to be affected by severity levels of PTSD symptomology, such questions have been used extensively in studies of autobiographical memory – e.g., studies with healthy control participants, memories in combat veterans diagnosed with PTSD, and for stressful memories of participants who varied in the severity of their PTSD symptom (Rubin et al. 2008). As suggested by Rubin and colleagues, the scales should be considered individually rather than being summed because they measure different aspects of autobiographical memory.

For the purpose of this study, the AMQ was used as a description of the memory characteristics and as a dichotomous measure of intrusive memories (alongside the intrusion subscale of the IES described above). Specifically, intrusive memories were measured based on the presence/absence of their defining criteria (i.e., distressing, recurrent, *and* involuntarily triggered). If all three criteria were met, then responses were coded as 'yes' for presence of intrusive memories.

2.3.2.3 Emotional Experiences Questionnaire (EEQ). Porter and Birt (2001) initially designed the EEQ to collect information regarding subjective and objective memory reports of emotional events. For the purpose of this study, five questions selected from the EEQ assessing the phenomenological (subjective) characteristics of participants' memory were used.

Items assess stress ratings of the offence (1 = *not at all stressful* to 7 = *extremely traumatic*), and whether participants' memory of it contained sensory components (visual, sounds, smell, touch, and taste), where each memory is coded from 1 to 5 based on the number of sensory components. These items served as descriptors of the offence and memory. Lastly, the offender's vantage point (recall perspective) was assessed on a 3-point scale (1 =*I can never see myself in the memory*, 2 = *the memory changes so that I can see myself in the memory image only some of the time*, 3 = *I can always see myself in the memory*). This item served as the categorical measure of recall perspective (field/both/observer), with ratings increasing from a field perspective to a more dominant observer perspective. See Appendix H for these items.

Porter and Birt (2001) designed the EEQ for their study examining the nature of traumatic memory in undergraduate university students. The mean stress rating of the traumatic events reported by this sample was 6.30 (*SD* = 1.08). Overall, 84% of participants provided a stress rating of either '6' (26.8%) or the maximum '7' (57.2%).

2.3.2.4 Post-Traumatic Cognitions Inventory (PTCI). The PTCI is a 33-item questionnaire that measures trauma-related thoughts and beliefs (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999; Appendix I). For the purpose of this study, the PTCI was used as measures of negative appraisals and self-blame in order to inform our findings regarding the relationship between intrusive memories, shame, the instrumentality-reactivity of the offence, and the recall perspective taken. Items were rated on a 7-point rating scale (1 = *totally disagree* to 7 = *totally agree*). The PTCI is comprised of three subscales: Negative Cognitions About Self; Negative Cognitions About the World; and Self-Blame. These subscales cover a wide range of potentially problematic appraisals and related emotions (guilt, shame, anger, sadness, fear). The scales have demonstrated construct validity, excellent internal consistency (α = .86 to .97), and good test-retest reliability (.74 to .89). The PTCI also discriminates well between traumatized individuals with and without PTSD (Foa et al., 1999).

2.3.2.1 Trauma Related Shame Inventory (TRSI). The TRSI is a 24-item measure that assesses shame related to a traumatic experience (Øktedalen, Hagtvet, Hoffart, Langkaas, & Smucker, 2014; Appendix J). Items were answered based on the time since the offence in question happened and are rated on a 4-point Likert scale (0 = *not at all correct about me*; 1= *sometimes correct about me*; 2 = *mostly correct about me*; 3 = *completely correct about me*).

The TRSI was used to measure shame, whereby the construct of shame is operationally defined as "a negative evaluation of the self in the context of trauma with a painful affective experience, and a behavioral tendency to hide and withdraw from others to conceal one's own perceived deficiencies" (Øktedalen et al., 2014, p. 604). The TRSI has demonstrated good construct validity, whereby shame as measured by the TRSI is found to be significantly distinct from guilt. The TRSI is comprised of two subscales (internal shame and external shame), however, the authors recommend a fusion of the two by summing all the items to create a total score representing a general component of shame. A modified version of the TRSI was used in the current study, whereby the word *traumatic experience* was replaced with the word the participant used to refer to his offence (e.g., *"the gong-show;" "my first assault;" "the DUI"*).

2.3.2.2 Gudjonsson Blame Attribution Inventory – Revised (GBAI-R). The Guilt Attribution Subscale from the GBAI-R was used in the current study to measure offender guilt (Gudjonsson & Singh, 1989; Appendix K). This 18-item subscale assesses the degree to which participants continue to reproach themselves for their criminal actions (e.g., "I feel very ashamed of the crime I committed," "I am constantly troubled by my conscience for the crime I committed") on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). The guilt subscale item mean score found in Gudjonsson and Singh's (1989) sample of convicted offenders was 10.1 (*SD* = 4.6).

The overall GBAI-R was initially developed to assess remorse in offenders and has demonstrated good reliability and transcultural validity (Gudjónsson & Pétursson, 1991). The GBAI-R had been used in a number of studies examining offence related guilt and blame attribution (e.g., Crisford et al., 2008).

2.3.2.3 Instrumentality-Reactivity of the Offence Questionnaire (I-ROQ). This questionnaire was created for the purpose of the current study in order to assess the degree to which the offence was reactive or instrumental in nature (Appendix L). A total of 25 items were created for this study, and were designed based on coding criteria assessing five distinct behavioral domains relevant to distinguishing between these offence types (see Cornell et al., 1996; Vitacco, Neumann, Caldwell, Leistico, & Van Rybroek, 2006; Woodworth & Porter, 2002).

The items assessed the degree of presence or absence of these behaviors: (1) planning or preparation before the aggression; (2) goal directed or opportunistic (e.g., money, sex); (3)

perceived provocation by the victim; (4) anger during the aggression; and (5) the relationship to the victim of the aggression. In prior research (see Cornell et al., 1996; Vitacco et al., 2006; Woodworth & Porter, 2002), these five domains are coded based on file reviews of the offence history, however for the purpose of this study, they were coded based on offender's self-report responses to the items in the questionnaire.

To further complement these five domains, and their potential relevance to shame and intrusive memories, additional questions were included in the current study to assess the extent to which offenders felt certain supplementary emotions during the event (e.g., sad, frustrated, ashamed, afraid, happy). All items are rated on a 5-point scale (1 = *disagree, 3 = neutral,* 5 = *agree)*. A total of 11 participants reported that their crime did not involve a victim, and as such, chose to leave the three questions regarding victims blank. These crimes included drug trafficking, dangerous driving, break and enter, breach, and possession of a firearm. Given that all crimes technically have a victim (e.g., society, drug users), neutral responses were inputted to deal with this missing data.

To examine the structure of the I-ROQ measure, a principal-axis factor analysis with promax rotation was conducted. This analysis extracted three factors with eigenvalues greater than 1.00 (see Table 2.2.). As a rule of thumb (as per Tabachnick & Fidell, 2001), factor loadings needed to be greater than .45 (20% shared variance with the factor) to be said to load on a factor. The sizes of factor loadings were mainly fair (.452) to excellent (.817), with three borderline low loadings (.367, .375, and .414) that were kept in as to not prematurely throw them out. Specifically, lower loadings were deemed acceptable as exceptions to the rule of thumb given that items theoretically fit with their respective factors. The three factors were interpreted as Anger During Offence (angry, hatred, frustrated, insulted, betrayed, provoked by victim, victim aggravated, victim not a stranger, motivated by emotions in the moment; $\alpha = .85$), Dysphoria During the Offence (helpless, sad, inferior, ashamed, embarrassed, afraid; $\alpha = .85$), and Lack of Planned Control (offence not planned; no goal in mind; did not offend to gain something; offence did not go as planned; event, thoughts, and/or feelings were in my control; not happy, not calm; $\alpha = .79$). These factors explain 42.78% of the total variance. Feelings of impulsivity did not load on any of these factors and were not included in further analyses, resulting in 24 remaining items. Higher scores on these factors reflect higher anger and dysphoric emotions, and a lack of plan/control (reverse coded items identified in appendix).

Items with cross loadings (e.g., hatred, insulted, helpless, betrayed frustrated, offending to gain something) were dealt with such that they were designated to their respective factors based on the theoretical foundation of these factors outlined in prior research (see Cornell et al., 1996; Vitacco et al., 2006; Woodworth & Porter, 2002).

Given that some crimes may include both reactive and instrumental components (Cooper & Yuille, 2007; Cornell et al., 1996), offence type is best assessed as a continuum rather than a dichotomy. Therefore, these three factor scores were also summed to provide a total continuous score for instrumentality-reactivity of the offence ($\alpha = .88$), with higher scores reflecting more reactive crimes, and lower scores reflecting greater instrumentality.

Table 2.2

Factor Loadings of I-ROQ Items

	Structure Matrix		
	Factor		
	1 Dysphoria During the Offence	2 Anger During Offence	3 Lack Planned Control
Embarrassed	**.817**	.213	.069
Ashamed	**.736**	.135	.014
Sad	**.732**	.278	.090
Afraid	**.668**	.144	.102
Helpless	**.642**	.419	.315
Inferior	**.539**	.365	.019
Insulted	.412	**.793**	.231
Victim aggravated me	.032	**.768**	.372
Angry	.407	**.744**	.317
Hatred	.448	**.688**	.158
Frustrated	.622	**.637**	.277
Provoked by victim	-.044	**.614**	.434
Betrayed	.408	**.569**	.107
The victim was a stranger *	.017	**.452**	.295
My offence was largely motivated by emotions in the moment	.400	**.414**	.150
Impulsive	.258	.286	.245
The offence was planned *	-.055	.252	**.708**
I offended to gain something *	.034	.477	**.680**
Offence happened as planned *	.104	.245	**.655**
I had a goal in mind *	-.054	.293	**.612**
Calm*	.260	.151	**.488**
Happy*	.415	.321	**.474**
My feelings were out of my control	.183	.316	**.469**
The event was out of my control	.100	.076	**.375**
I could not control my thoughts	.254	.275	**.367**

*Note: * items that were reverse coded for analyses*

2.3.2.4 Self-Report Psychopathy Scale-Short Form (SRP-SF). The SRP-SF is as a 29-item self-report measure of adult psychopathic features (Paulhus, Neumann, & Hare, 2015; Appendix M). The Short-Form was derived from the longer SRP-III Scale. Items are representative of, and related to, the features outlined in the Psychopathy Checklist-Revised (Hare, 2003). The SRP scales were organically designed to assess the four facets of psychopathy (Hare & Neumann, 2008), specifically interpersonal manipulation; affective callousness; an erratic lifestyle; and overt antisociality. In the SRP-SF, participants were asked to rate the extent to which they agree with various statements about themselves using a 5-point Likert scale (1 = *disagree strongly* to 5 = *agree strongly*). The SRP had demonstrated adequate internal consistency across the four scales (α = 69 to .76; Mahmut, Menictas, Stevenson, & Homewood, 2011). The SRP-SF has demonstrated promising psychometric properties, and reflects an underlying structure that is consistent with the broader psychopathic construct (Dotterer et al., 2016; Gordts, Uzieblo, Neumann, Van den Bussche, & Rossi, 2017; Neumann & Pardini, 2014).

2.3.2.5 Trauma Symptom Check-List 40 (TSC-40). The TSC-40 is a research measure that evaluates symptomatology in adults associated with childhood or adult traumatic experiences (Briere, 1996; Appendix N). The checklist measures aspects of posttraumatic stress and other symptom clusters found in some traumatized individuals. The checklist does not measure all 17 criteria of PTSD, and should not be used as a complete measure of that construct. The TSC-40 is a 40-item self-report instrument consisting of six subscales: Anxiety, Depression, Dissociation, Sexual Abuse Trauma Index, Sexual Problems, and Sleep Disturbance, as well as a total score. Each symptom item is rated according to its frequency of occurrence over the prior two months, using a four-point scale (0 = *never* to 3 = *often*). The TSC-40 is a relatively reliable measure (subscale alphas typically range from .66 to .77, with alphas for the full-scale averaging between .89 and .91). The TSC-40 and its predecessor, the TSC-33 (Briere & Runtz, 1989), have predictive validity with reference to a wide variety of traumatic experiences. The TSC-40 also appears to predict perpetration of intimate violence (e.g., Dutton, 1995) and vicarious traumatization in psychotherapists (e.g., Chrestman, 1995). The TSC-40 was used in the current study to account for the complexity of trauma, and to further assess participants' overall trauma symptoms (not necessarily cued to their offence).

2.3.3 Design

A correlational study examining the relationships between offenders' self-reported intrusive memories and possible predictors of these memories (i.e., shame, guilt, avoidance, instrumentality-reactivity of the offence) was conducted. This correlational study also examined additional relationships between secondary variables, as well as the perspective taken when recalling an event.

2.3.4 Procedure

Ethics approval to conduct the study was obtained through the University of Saskatchewan Research Ethics Board (REB) in December 2015. Unsuccessful attempts were made to gain access to a correctional sample of Federal inmates. Instead, permission was obtained from the Saskatchewan Ministry of Corrections and Policing to gain access to the offender population and to collect the data in the provincial institutions. The Director of the Saskatoon Correctional Center, the Director of Open Custody, and the Director of Community Training Residency were made aware of the research, and approved recruitment in their facilities. Correctional unit-managers on-site assisted in participant recruitment. Offenders who self-identified as interested in the study (see Internal Posting, Appendix B) were then approached by the researcher to participate. They were brought into an interview room on the unit, and were provided with more information about the study in order for them to determine if they were still interested in participating. This consent process consisted of these offenders being briefed on the nature of the study, the risks, benefits, right to withdraw, confidentially and limits to confidentiality (see Consent Form for full details, Appendix C). This process involved making them explicitly aware that their responses would have no impact upon their care/jail time and that the prison/clinical team would not be informed of their responses to the study materials. Offenders were also informed that all results would be kept confidential within the research team, with the proviso that if a participant was judged to be a significant current risk of harm to either himself or others, disclosed a child being harmed in the community, or spoke of a crime the authorities did not know about, then this information would be disclosed to the Deputy Director of Programs at the institution. Lastly, offenders were informed that they would not be promised any incentive to participate, and they were assured that a refusal to participate would not influence the treatment they receive or have any legal consequences.

Participation in the study was then initiated with the individual offenders who consented to participate. Using a similar approach to Evans and colleagues (2007a, 2007b), the study began with instructions to ensure that the researcher and offender were on the same page regarding "intrusive memories" and to orient them to think about a particular offence (see Appendix E). Instructions began by telling them that "*People who have committed a violent crime can remember the event in different ways. Some people have memories of parts of the crime that just pop into their head when they do not want them to. These are usually of specific moments from before, during or after the incident that somehow got stuck in their head and keep coming back. These thoughts are of part of what actually happened at the time, rather than your thoughts about what has happened since, such as being in prison because of the crime*." They were then asked if they sometimes get such unwanted thoughts or memories of a crime they committed. If yes, then they were asked if this happened to them for one particular crime or for more than one crime. If only one, then they were asked to keep that in mind for the remainder of their participation and that it would be the focus of the rest of the questions. If they reported this happening for multiple crimes, then they were directed to focus on one specific crime that stood out or popped up the most frequently for them. Giving these participants the opportunity to identify an offence that they felt was the most relevant or distressing to them was done to account for the possibility that a previous offence may have been more traumatic for the offender than the index offence (Crisford et al., 2008). Similarly, if they answered no about getting unwanted thoughts or memories, then they were just encouraged to think of a crime they committed that felt like the most significant or important to them in some way. Once they had the crime in mind, they were asked to tell the researcher about the nature of the offence. Next, they were asked what they call this event, or what we should refer to it as (in their words) for the remainder of the questions. Once this event was identified, they were told to remember "[*crime in their words*]," and keep it in mind as they answered all the questions. They were asked if they understood, and if they had any questions before beginning. Any confusion or questions were addressed at this point, and they were also encouraged to ask questions at any time throughout the questionnaire package if they did not understand something.

After going over the instructions, each offender was provided with a copy of the questionnaire package (order of questionnaires was randomized). They were told that they could follow along while the researcher read the questions out loud and kept track of their answers.

This process was done to avoid anticipated difficulties with literacy (and potential embarrassment related to having to disclose this limitation), and to ensure the participants' understanding of these questions. For each questionnaire, the researcher continually used their previously identified offence name (or their words of the event), to cue them to think of it for each question. Upon completion, these offenders were debriefed about the specifics of the study and hypothesized results (see Debriefing form, Appendix D). They were encouraged to refer to their case manager and/or chaplain at the institution if participation in the study resulted in any psychological distress. Participants were also given an opportunity to provide feedback about their participation and ask questions, and the researcher took field notes of their comments.

2.3.4.1 Pilot. In order to address questions from the Ministry and the REB regarding the length of the questionnaire and its cultural sensitivity, a pilot was conducted with the first 10 participants. Specifically, the first 10 offenders to participate self-identified as Indigenous, and feedback was solicited from them regarding their thoughts on the questionnaire and its cultural appropriateness. Average completion time was also noted for these first 10 participants. Seven on these participants stated they did not have any feedback or comments to make regarding the questionnaire. The other three offenders offered feedback. One commented on the overall treatment of Indigenous men and women by the police in the community, and spoke of injustices regarding this perspective. This view was received with validation and empathy. When questioned regarding whether he had any thoughts regarding the specific items in the study, this participant stated these questions were fine and he had no concerns. The other two participants expressed appreciation for being talked to and stated that they were surprised by how much they had been unconsciously avoiding their thoughts and memories about their offences. Upon exploration of these comments, they stated that they often do not have the opportunity to talk to anybody besides the correctional officers, and that they valued the opportunity to reflect and tell their stories. The average completion time for these 10 participants was 43 minutes (min = 34, max = 60). As a result of these pilot findings, no procedural changes were made to the study and data collection continued as described above (and these 10 participants were included in the final sample).

2.3.5 Comments on Participation

Most people participating in research studies that ask about trauma memories find it to be a positive experience, and they typically do not regret participating (Jaffe, DiLillo, Hoffman,

Haikalis, & Dykstra, 2015). As such, we did not expect that participation in the current study would cause participants any further stress or suffering beyond what they might already be going through. That being said, completing questionnaires regarding a potentially traumatic event/offence can create some stress, and we recognized that asking offenders to answer questions about the offence and to reflect on their feelings, memories, and thoughts related to it, could be challenging for some individuals to do.

In recognizing the sensitive nature of discussing offending behaviors and feelings, we wanted to give participants a chance to share their thoughts on any aspect of the study, the forms, and the questions. Akin to the findings of Jaffe and colleagues (2015), some of the feedback solicited from participants during/after participation related to benefiting from participating in the study. For example, many reported that it was "good to talk about," "I feel better talking about it - don't get many opportunities to talk to anyone...helpful," "made me look at myself," and "makes you think!" Two participants cried for the duration of completing the questionnaire package, and reported high levels of shame regarding their offence (i.e., domestic assault, and child pornography). They were asked if they were alright, and were offered breaks periodically during the questions. Both were insistent on continuing with their participation. Afterward, the unit staff was made aware that these individuals were feeling emotional and they were to check in on their well-being later on. Two other participants stated that they felt no shame or guilt, but rather that they were proud that their street credibility was enhanced by their offence.

Other feedback provided related to the questionnaire itself. Some participants noted that it would be important to also ask them about their motivations for their crimes, their past/childhood history, and past traumas. For example, one said "intent matters" when he was asked about the level of stress associated with the event. Another noted that we "should ask about impact of crime on future - consequences (e.g., "needing to pay SGI [Saskatchewan Government Insurance]," "no licence")…the impact of these things." One participant wondered what his victims would say if given the same questionnaire about that offence: "you should ask these questions to victims to see how the crime impacts them."

Some participants reported that they found "Questions a little bit repetitive," Questions too broad sometimes…and need to be more specific," and "Some questions were kind of weird." This latter comment related to the questions in the TSC-40 questionnaire which asked about sexual experiences in the last few months. Participants found these questions somewhat

uncomfortable and irrelevant given that they were in jail. Although all participants were told during the consent procedure that they could leave a response blank if they preferred, it was decided (after supervisor consultation) that an additional statement would be made when introducing this set of questions telling participants that some may not be relevant and reminding them that they could leave their response blank if they wanted. This addition seemed to be sufficient in easing any participant discomfort relating to these items.

One participant reported that he experienced strong trauma-symptoms about his offence, but that he was on a high dose of mood stabilizers which "numbs it all out." He stated that if it were not for the medication, he would otherwise be volatile and not be able to participate or engage in these questions. He noted that he sees a psychiatrist for medication dose revisions but does not receive trauma therapy/treatment while in custody. Another participant had difficulty answering the questionnaire items without providing some background information or related story. He reported that story-telling was an important part of his Indigenous culture and that he thought it was an important tradition to uphold (in terms of teachings and sharing knowledge). In an effort to remain culturally sensitive and respectful, his story-telling was encouraged, while balancing this with reminding him of the purpose of the study and keeping him on track (re: relevance of the stories to the item). As a result, his participation lasted over one hour and a half, and he seemed to appreciate being accommodated and heard.

2.4 Data Screening and Observations

Data screening and cleaning were conducted on all measures prior to carrying out analyses using SPSS 24. All relevant assumptions (normality, adequate sample sizes, multicollinearity, homoscedasticity) were assessed and met prior to conducting the analyses discussed below. Square root transformations were conducted on the Trauma Related Shame Inventory (TRSI) total scores to correct for skewness; otherwise all other assumptions of normality were met where necessary. Analyses of scale reliability were conducted and revealed that all scales, with the exception of the Post-Traumatic Cognitions Inventory (PTCI) self-blame subscale, demonstrated strong internal consistency (Cronbach α's > .80). The self-blame subscale demonstrated poor internal consistency (α =.46) and this was not significantly improved by deleting items. This subscale (along with the PTCI negative cognitions subscales) was meant to inform our findings regarding the relationship between intrusive memories, shame, and the instrumental-reactivity of the offence, but given its limited reliability with this sample, no

analyses were conducted on the self-blame subscale. The self-blame subscale may have done so poorly in this study because it was originally created for assessing blame in events that happen *to* individual (e.g., victim) as opposed to *by* individuals (e.g., perpetrator) – in the sense that it may be tapping into a different sense of blame and responsibility (or lack there of) in the current study that "muddied" the scale responses.

Observations during data collection flagged some concerns regarding the construct validity of both the Post-Traumatic Cognitions Inventory and the Trauma-Symptoms Checklist in a jail context. Specifically, both of these measures were developed on samples of trauma victims in the community (Briere & Runtz, 1989; Foa et al., 1999); however, many participants in the current study explicitly stated that they endorsed certain items because of their current context (i.e., being in jail), and not necessarily because of traumas or their offence. Examples of these items include questions regarding trust, being on guard, believing the world is a dangerous place, having no future (i.e., "criminal record"), feeling like an object not a person (i.e., labeled a 'criminal'), as well as questions regarding poor sleep (e.g., uncomfortable bunks, noises on unit, flashlight during 'count'), and fear of men (e.g., other offenders). A total of 17 participants chose to leave their response to the sex related items on the TSC blank (i.e., not feeling satisfied with your sex life, having sex that you didn't enjoy, bad thoughts or feelings during sex, sexual feelings when you shouldn't have them), stating that these did not apply to them due to their context. Participants were cued to respond to the PTCI in the context of their crime, whereas the TSC was meant to capture any trauma symptoms (related to offence or not). Overall, it remains uncertain and difficult to untangle whether their reported cognitions or trauma symptoms were based on the offence, past traumas, or based on being involved in the justice system. Given the apparent group differences (between 'victims in the community' and 'offenders in custody') in the interpretations of words or items, these may have been responded to in a different context and for a different purpose than for which they were originally developed. Therefore, it is possible that these scales do not measure the latent constructs they were initially intended to measure (Furr, 2011; Tucker, Ozer, Lyubomirsky, & Boehm, 2006). As a result, the findings below involving these constructs may be compromised, and should be interpreted with these limitations in mind.

CHAPTER 3: Results

3.1 Description of Offenders' Memories

As described in the Procedure section, participants were asked during the instructions whether they sometimes get unwanted thoughts or memories of a crime they committed. If they responded yes, then they were asked to keep that in mind, and if not, then they were just encouraged to think of a crime they committed that "felt important to them in some way." Participant responses were written in field notes: 30% said yes, 40% said no, and 30% were unsure. Throughout the course of their answers to questionnaire items, it became apparent that this initial question did not produce accurate responses. Specifically, many participants did not have a good understanding of what these 'unwanted memories' might look like until they read more specific questionnaire items, or had not reflected on this before this experience and had limited insight into their own thought and memory processes. These responses were not used as an official measure of intrusive memories (endorsement of defining criteria items was used for more reliable prevalence rates, as discussed below) but were still useful to orient the participants to the questionnaire package and topic of study.

Participants reported the offence type for the crime that they had in mind, and this was the offence focused on throughout the questionnaire package. Many participants (63%) chose to focus on the crime for which they were currently serving time, but some chose older crimes – with the age of the memory/crime ranging from being within the last two years to as long as 27 years ago (see Table 2.1). The majority (69%) discussed crimes that were their index offence or were of a comparable crime type as their index offence. Those that discussed different crimes often chose a crime of greater severity than their index offence (e.g., index of breach or possession but chose assault, robbery, or attempted murder to refer to for the purpose of the study questionnaire). A quarter of the offences disclosed were reportedly conducted while under the influence of drugs or alcohol. Many participants reported some aspects of intrusive memories related to the crime: distressing memories (62%); involuntarily triggered (84%); and/or recurrent (58%). Only a proportion of these, however, met the 'three-criteria defining threshold' for intrusive memories, described below.

3.1.1 1a) Prevalence of Intrusive Memories

Based on previous findings (Evans et al., 2007b; Gray et al., 2003; Musker, 2013; Pollock, 1999; Spitzer et al., 2001; Welfare & Hollin, 2015), it was anticipated that

approximately 35–50% of adult offenders would report intrusive memories. A total of 43% of participants in the current study reported intrusive memories (recurrent, distressing, *and* involuntarily triggered memories) for the crime they had committed. Intrusive memories were reported across all offence types (see Table 2.1).

3.1.2 1b) Description of Intrusive Memories

Intrusive memories were expected to involve sensory components, and be triggered by cues related to the crime (Ehlers & Clark, 2000; Evans et al., 2007b). Intrusive memories in the current sample did involve sensory components, whereby 93% reported visual elements (see something in the memory), 64% auditory (hear something), 28% olfactory (smell something), 60% tactile (touch something), and 21% sense of taste (taste something). In terms of cues/triggers of the intrusive memories, 28% reported being cued by the environment, 16% by their thoughts, and 56% by a mix of both. A total of 23% of participants reported experiencing flashbacks (i.e., recurrent, distressing, *and* involuntarily triggered memories, *with* a specific reliving/re-experiencing component to them) regarding their crime.

3.1.3 1c) Impact of Event and Intrusive Memories

Scores on the IES Intrusion subscale, which measures intrusive symptoms, were positively correlated with the dichotomous measure of intrusive memories based on defining criteria (see Table 3.1). All further analyses were conducted on both measures wherever possible. In an effort to account for the 'messiness' of trauma, all analyses reported below were also going to be conducted with trauma symptoms (TSC-40) being controlled. To explore this plan, analyses were conducted both with and without this control, and generally speaking, the results were similar (see Appendix P). Given those limitations noted above regarding the reliability of the TSC measure with the current sample, and the enhanced clarity of the interpretation when not including it, the results that are reported below are without the inclusion of this control.

Participants in the current sample had the following mean scores: intrusions (M = 14.02, SD = 8.79); avoidance (M = 15.06, SD = 9.82); and total impact of event (M = 29.08, SD = 16.29). It was expected that intrusive symptoms would be related to higher levels of stress and avoidance symptoms (Ehlers & Clark, 2000; Robinaugh & McNally, 2010). Correlational analyses were conducted on both the continuous and dichotomous measures of intrusive memories, stress related to the offence (as measured by the EEQ), and avoidance (as measured

by the IES) – see Table 3.1. Higher scores on both measures of intrusive memories were related to both higher stress ratings and high frequency of avoidance symptoms. Higher ratings of stress related to the offence were also related to higher frequency of avoidance symptoms. When asked to rate the level of stress associated with the offence in question on a 7-point scale (from *not at all stressful* to *extremely traumatic*), 72% of the participants with intrusive memories rated the event as 5 or higher ($M = 5.09$, $SD = 1.34$). A total of 74% of participants felt like the offence/event in question was a central part of their life story.

Table 3.1

Correlations between Intrusion Symptoms, Intrusive Memories, Stress Rating of the Offence, and Avoidance Symptoms

	Intrusions	IM	Stress	Avoidance
Intrusions	---	.47***	.51***	.53***
Intrusive Memories		---	.32*	.30*
Stress			---	.25*

*$p < .05$, **$p < .004$, *** $p < .001$

Note: IM = Intrusive Memories (higher values indicate yes/present)

3.2 Factors That May Influence Offenders' Intrusive Memories

3.2.1 2a) Shame and Guilt

We were interested in examining how feelings of shame and guilt regarding the offence relate to offenders' intrusive memories. Total scores from the TRSI and the GBAI-R guilt subscale were used as continuous measures of shame ($M = 22.55$, $SD = 17.44$) and guilt ($M = 72.26$, $SD = 21.66$), respectively, to assess offenders' feelings regarding their offence. As expected (see Gray et al., 2003; Robinaugh & McNally, 2010), correlational analyses revealed that guilt and shame are highly positively correlated with each other (see Table 3.2). Both were also positively correlated with intrusive memories as measured by both the IES Intrusions subscale and the dichotomous measure. To further inform our understanding of these relationships, we also examined PTCI negative cognitions of self and the world subscales. Scores on the negative cognitions of self subscale ($M = 2.29$, $SD = 1.06$) were positively correlated with all variables in these analyses, and scores on the negative cognitions of the world subscale ($M = 4.58$, $SD = 1.50$) were positively related to shame. It was unknown how long

participants had been in custody (i.e., length of sentence and when it started was not known); therefore, it is unclear how long they were feeling shame/guilt, and what the impact of this experience had on the participant's self-appraisals and overall well-being (e.g., effect of feeling shame for one month vs. one year).

Table 3.2

Correlations between Intrusive Memories, Shame, Guilt, and Negative Cognitions

	Shame	Guilt	Neg Cog Self	Neg Cog World
Intrusions	.58**	.41**	.45**	.17
Intrusive Memories	.51**	.47**	.30*	.16
Shame	--	.75**	.56**	.23*
Guilt	--	--	.32*	.03

*$p < .05$, **$p < .001$

Note: Intrusive Memories – higher values indicate yes/present; Neg Cog Self = Negative Cognitions of Self; Neg Cog World = Negative Cognitions of the World

3.2.2 2b) Effect of Shame

Partial correlations were used to examine whether the relationship between guilt and intrusive memories would still be present once we controlled for shame (Crisford et al., 2008; Robinaugh & McNally, 2010). It was also of interest to see what role negative cognitions had in these relationships once shame was partialled out. As predicted, these results were non-significant for both the IES intrusions subscale and the dichotomous measure (see Table 3.3). When controlling for shame, more negative views of the world were related to less guilt regarding the offence.

Table 3.3

Partial Correlations of Intrusive Memories, Guilt, and Negative Cognitions, when Controlling for Shame

	Guilt	Neg Cog Self	Neg Cog World
Intrusions	-.05	.19	.05
Intrusive Memories	.16	.03	.06
Guilt	--	-.17	-.23*

*$p < .05$

Note: Intrusive Memories – higher values indicate yes/present

The effect of shame was further confirmed in a multiple regression analysis which examined if shame, guilt, and/or negative cognitions (predictors) were significant predictors of intrusive memories as reported on the IES intrusion subscale (criterion). The overall regression was significant, and revealed that these variables accounted for 36% of the variance in intrusive memories (see Table 3.4). Shame emerged as a significant predictor of intrusive memories, whereas these other variables did not.

Table 3.4

Multiple Regression Examining Predictors of Intrusive Memories

	B	SE	*β*	*t*	*p*	sr^2
Shame	2.21	3.47	.50	3.46	.001	.08
Guilt	-0.01	0.05	-.03	-0.23	.822	.00
Neg Cog Self	1.70	0.93	.20	1.83	.071	.02
Neg Cog World	-0.27	0.57	-.05	-0.47	.637	.00
Overall Model	$F(4, 95) = 13.43$, $p < .001$, $R^2 = .36$					

A logistic regression analysis was also conducted to predict the presence/absence of intrusive memories (dichotomous measure) in this offender population using shame, guilt, and negative cognitions of self as predictors. A test of the full model against a constant only model was statistically significant, indicating that these predictors as a set reliably distinguished between the presence or absence of intrusive memories, $\chi^2(3) = 32.35$, $p < .001$. *Nagelkerke's* R^2 of .37 indicated a moderate relationship between prediction and grouping. Prediction success overall was 73% (77% for absence of intrusive memories and 67% for their presence). The Wald criterion demonstrated that only shame made a significant contribution to prediction (p = .044). Guilt, and negative cognitions of the self, again, were not significant predictors of this dichotomous measure of intrusive memories (p = .110 and .660, respectively). The EXP(B) value indicates that with every 1 point increase in shame scores, the odds ratio is 1.56 times as large and therefore offenders who experience shame regarding their offence are 1.56 times more likely to experience intrusive memories of it.

3.2.3 3a) Offence Type, Instrumentality-Reactivity of the Offence, and Intrusive Memories

It was expected that intrusive memories would be reported across all charges/offence types (Gray et al., 2003). To examine this, offence types were collapsed into violent (weapons,

sexual, violent, and homicide offences) vs. non-violent (i.e., motor vehicle, property, and drug offences – with administrative of justice offences being dropped from analyses as there are only 2 cases of it). An independent t-test of the type of the offence reported on the continuous measure of intrusive memories was not significant, $t(96) = 1.75$, $p = .083$, 95% CI [-0.42, 6.68]. Similarly, a chi-square examining if there were differences in intrusive memories (yes/no) between violent/non-violent offences was not significant, χ^2 (1) = .17, $p = .680$, *Cramer's V* = .04. These findings suggest that intrusive memories do not discriminate between offence types, and that other factors are at play in the experience of intrusive memories.

Post-hoc MANOVAs were conducted on shame, guilt, and instrumentality-reactivity by offence category to explore this possibility further. Results revealed a significant difference in levels of shame, $F(1, 96) = 4.96$, $p = .028$, $\eta_p^2 = .05$; and reactivity, $F(1, 96) = 33.59$, $p < .001$, $\eta_p^2 = .26$, reported between violent and non-violent offences. Specifically, violent offences were more reactive in nature and related to higher shame ratings compared to non-violent offences (see Table 3.5). There were no significant differences in levels of guilt between offence types, $F(1, 96) = 1.27$, $p = .263$, $\eta_p^2 = .01$.

Table 3.5

Comparisons of Mean Shame, Guilt, and Instrumentality-Reactivity Scores by Offence Type

		N	Mean (*SD*)
Shame Total	Violent Offence	42	4.85 (2.09) [a]
	Non-Violent Offence	56	3.96 (1.84) [a]
Guilt Total	Violent Offence	42	75.29 (23.27)
	Non-Violent Offence	56	70.27 (20.66)
IRO-Q Total	Violent Offence	42	86.69 (16.78) [b]
	Non-Violent Offence	56	64.68 (19.96) [b]

[a] $p < .030$, [b] $p < .001$

3.2.4 3b) Instrumentality-Reactivity of Offence and Intrusive Memories

Correlational analyses were conducted to explore whether the instrumentality-reactivity of the offence was related to intrusive memories (see Table 3.6). As predicted, a positive correlation was found between the instrumentality-reactivity of the offence and the intrusions subscale, whereby intrusive symptoms were related to offences that were more reactive in nature. This relationship was only marginally significant for the dichotomous measure of intrusive

memories. When examining individual factors, anger, dysphoria, and a lack of planned control during the offence were positively related to intrusive symptoms. Only dysphoria, which consists of emotions felt such as embarrassed, ashamed, sad, afraid, helpless, and inferior, was related to the dichotomous measure of intrusive memories, with higher levels of dysphoria at the time of the offence being associated with the presence of intrusive memories.

Table 3.6

Correlations between Instrumentality-Reactivity of Offence and Intrusive Memories

	Total Instrumentality-Reactivity	Anger	Dysphoria	Lacking Planned Control
Intrusions	.39***	.32**	.36***	.22**
Intrusive Memories	.19*	.12	.22**	.10

*p = .059, ** p < .05, *** p < .001

Note: Intrusive Memories – higher values indicate yes/present

Follow-up regression analysis on these individual factors and intrusive symptoms was significant, and revealed that these variables accounted for 17% of the variance in intrusive memories (see Table 3.7). However, dysphoria emerged as a significant unique predictor of intrusive memories.

Table 3.7

Multiple Regression Examining Anger, Dysphoria, and Planned Control as Predictors of Intrusive Memories

	B	SE	*β*	*t*	*p*	sr^2
Anger	0.14	0.09	.16	1.50	.137	.02
Dysphoria	0.31	0.12	.27	2.63	.010	.06
Lack of Planned Control	0.09	0.10	.09	0.90	.371	.01
Overall Model	$F(3, 96) = 6.66$, $p < .001$, $R^2 = .17$					

3.2.5 3c) Instrumentality-Reactivity of the Offence, Shame, and Intrusive Memories.

It was expected that the more reactive the crime, the more shame experienced, and that both of these factors would lead to the development of intrusive memories. Therefore, a

mediation analysis was conducted in order to examine whether instrumentality-reactivity of the offence (X) had an impact on intrusive symptoms (Y) because of shame (mediator) – see Figure 3.2. This mediation analysis was approached as per the steps outlined by Baron and Kenny (1986). Results indicated that instrumentality-reactivity of the offence was a significant correlate of shame (*a*), and that shame was a significant correlate of intrusive symptoms (*b*). These results support the mediational hypothesis. The instrumentality-reactivity of the offence was still a significant correlate of intrusive symptoms after controlling for the mediator, shame (*c'*), but to a lesser extent than the initial path (*c*). These results are consistent with a partial mediation. Approximately 37% of the variance in intrusive symptoms was accounted for by these variables. The indirect effect was tested using a bootstrap estimation approach with 1000 samples (Preacher & Hayes, 2004). These results indicated that the indirect coefficient was significant, *B* = .08, *SE* = .02, 95% CI [0.04, 0.13]. Committing an offence that was more reactive in nature was associated with approximately .08 points higher intrusion scores as mediated by shame.

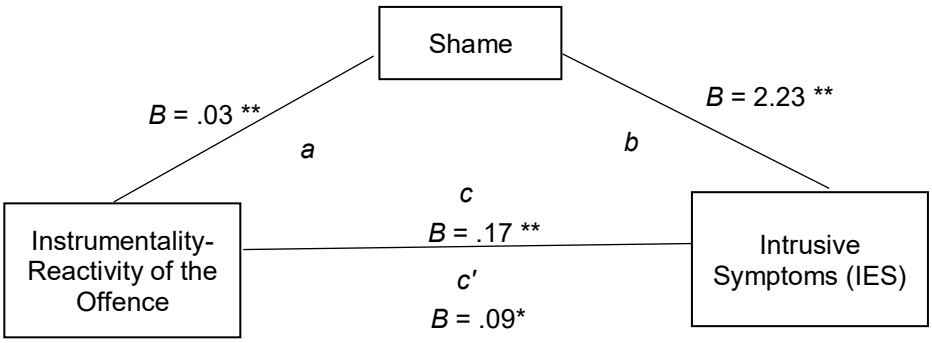

Figure 3.1

Relationship between Instrumentality-Reactivity of the Offence and Intrusive Symptoms as Partially Mediated by Shame

3.2.6 4a) Emotionality and Avoidance

It was expected that avoidance would be related to both ratings of stress regarding the event, as well as ratings of emotions at the time of the offence (Ehlers & Clark, 2000; Horowitz, 1976). Correlational analyses confirmed that the higher the experiences of anger and dysphoria (as measured by the I-ROQ) at the time of the crime, the more stress (as measured by the EEQ) reported regarding the offence (see Table 3.8). In addition, the higher the ratings of stress and

dysphoria, the more avoidance (IES) reported. Anger during the offence was not significantly related to avoidance symptoms.

Table 3.8

Correlations between Emotionality During Offence, Stress, Shame, and Avoidance

	Stress	Shame	Avoidance
Anger During Offence	.21*	.20*	.13
Dysphoria During Offence	.38***	.45***	.30**
Stress	--	.48***	.25*
Shame	--	--	.52***

*$p < .05$, **$p = .002$, ***$p < .001$

Follow-up regression analysis on dysphoria, stress, and shame on avoidance was significant, and revealed that these variables accounted for 28% of the variance in avoidance (see Table 3.9). Shame emerged as a significant unique predictor of avoidance, whereas these other two predictors did not.

Table 3.9

Multiple Regression Examining Dysphoria, Stress, and Shame as Predictors of Avoidance Symptoms

	B	SE	*β*	*t*	*p*	sr^2
Dysphoria	0.11	0.13	.08	0.83	.406	.00
Stress	-0.08	0.55	-.01	-0.14	.892	.00
Shame	2.42	0.52	.49	4.67	.000	.16
Overall Model	$F(3, 96) = 12.23$, $p < .001$, $R^2 = .28$					

3.2.7 4b) Stress, Avoidance, and Intrusive Memories

It was expected that the effect of the level of stress of the event on intrusive memories would be mediated by avoidance response/coping (Ehlers & Clark, 2000; Foa & Kozak, 1986). A mediation analysis was conducted in order to examine whether the stress rating of the event (X) has an impact on intrusive symptoms (Y) because of avoidance (mediator) – see Figure 3.3. This mediation analysis was approached as per the steps outlined by Baron and Kenny (1986). The results indicated that stress ratings were a significant correlate of avoidance (*a*), and that

avoidance was a significant correlate of intrusive symptoms (*b*). These results support the mediational hypothesis. Stress rating was still a significant correlate of intrusive symptoms after controlling for the mediator, avoidance (*c'*), but to a lesser extent than the initial path (*c*). These results are consistent with a partial mediation. Approximately 44% of the variance in intrusive symptoms was accounted for by the variables (R^2 = .44). The indirect effect was tested using a bootstrap estimation approach with 1000 samples (Preacher & Hayes, 2004). These results indicated that the indirect coefficient was significant, *B* = .53, *SE* = .24, 95% CI [0.13, 1.08]. Higher stress ratings of the offence event were associated with approximately 0.53 points higher intrusive symptoms scores as mediated by avoidance symptoms.

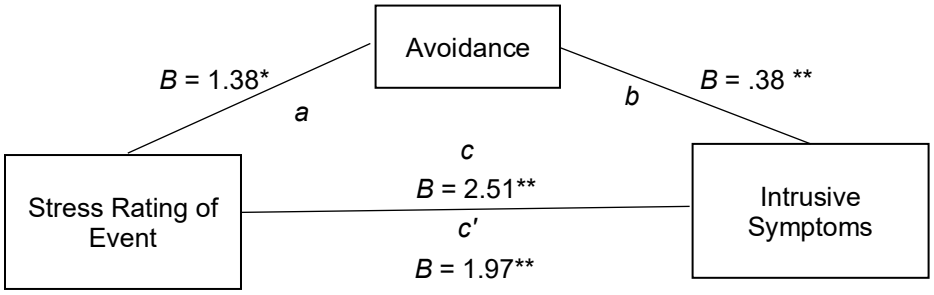

Figure 3.2

Relationship between Stress Rating of Offence Event and Intrusive Symptoms as Partially Mediated by Avoidance Response/Coping

3.2.8 5) Most Significant Predictor(s) of Intrusive Memories

The results above address the relationship between each individual factor of interest and intrusive memories, and allude to which factor may emerge as the most significant predictor of intrusive memories. That being said, we were interested in the amount they each may incrementally predict when they are all included in the regression analysis. Therefore, offence-related guilt, instrumentality-reactivity of the offence, stress ratings of the event, and shame were each entered in turn as predictors of intrusive memories in a hierarchical (sequential) regression (see Table 3.10). The overall model accounted for 43% of the variance in intrusive memories. The addition of each variable added incrementally to the overall prediction of intrusive memories at each step. Once shame was included in the model, guilt and instrumentality-reactivity were no longer significant predictors. With all predictors considered, stress ratings for the event and offence-related shame contributed to the frequency of intrusive memories over and above the

other primary factors of interest, with shame accounting for the most (8%) unique variance in intrusive memories.

Table 3.10

Hierarchical Regression of Guilt, Instrumentality-Reactivity of the Offence, and Shame on Intrusive Memories

		B	*S.E. B*	*β*	*95% CI*		sr^2
Step 1							
	Constant	1.99	2.82				
	Guilt	0.17	0.04	0.41**	0.09	0.24	0.17
Step 2							
	Constant	-5.48	3.42				
	Guilt	0.14	0.04	0.33**	0.06	0.21	0.10
	I-R	0.13	0.04	0.31**	0.06	0.21	0.09
Step 3							
	Constant	-6.44	3.24				
	Guilt	0.08	0.04	0.20*	0.01	0.16	0.03
	I-R	0.10	0.04	0.23*	0.02	0.17	0.04
	Stress	1.69	0.47	0.34**	0.76	2.62	0.09
Step 4							
	Constant	-2.79	3.19				
	Guilt	-0.04	0.05	-1.02	-0.14	0.05	0.00
	I-R	0.07	0.04	0.15	-0.01	0.14	0.02
	Stress	1.38	0.45	0.28*	0.50	2.27	0.06
	Shame	2.06	0.55	0.46**	0.97	3.15	0.08

Note: I-R = Instrumentality-Reactivity; * $p < .05$, ** $p \leq .001$.

$R^2 = .17$ for Step 1; $\Delta R^2 = .09$ for Step 2 ($p = .001$); $\Delta R^2 = .09$ for Step 3 ($p < .001$); $\Delta R^2 = .08$ for Step 4 ($p < .001$), Overall $R^2 = .43$

Sequential logistic regression was also used to explore which was the most significant predictor of the dichotomous measure of intrusive memories (see Table 3.11). A test of the full model against a constant only model was statistically significant, indicating that these predictors

as a set reliably distinguished between the presence or absence of intrusive memories. *Nagelkerke's* R^2 indicated a moderate relationship between prediction and grouping. With the exception of shame, the addition of each variable did not add incrementally to the overall prediction of intrusive memories. The overall model increased prediction success from 57% (Block 0) to 72% in the last Block (77% for absence of intrusive memories and 65% for their presence). The final Wald criterion demonstrated that, when all variables were considered, only shame made a significant unique contribution to prediction. The EXP(*B*) value in this model indicates that with every one point increase in shame scores, the odds ratio is 1.58 times as large; therefore, offenders who experience shame regarding their offence are 1.58 times more likely to experience intrusive memories of it. The combination of these results from both the continuous and dichotomous measures of intrusive memories, highlight that shame emerges as the underlying significant predictor of intrusive memories over and above the other primary factors of interest in this study.

Table 3.11

Sequential Logistic Regression of Guilt, Instrumentality-Reactivity of the Offence, and Shame on Intrusive Memories

		B	*S.E.*	Wald	*p*	*Exp(B)*	*95% CI. for EXP(B)*	
Block 1	Constant	-4.39	1.00	19.19	.000	0.01		
	Guilt	0.05	0.01	18.52	.000	1.06	1.03	1.08
Block 2	Constant	-5.00	1.25	16.02	.000	0.01		
	Guilt	0.05	0.01	16.91	.000	1.05	1.03	1.08
	I-R	0.01	0.01	0.76	.382	1.01	.99	1.03
Block 3	Constant	-5.11	1.26	16.42	.000	0.01		
	Guilt	0.05	0.01	12.74	.000	1.05	1.02	1.08
	I-R	0.01	0.01	0.29	.591	1.01	.98	1.03
	Stress	0.16	0.15	1.15	.283	1.18	.87	1.59
Block 4	Constant	-4.54	1.28	12.52	.000	0.01		
	Guilt	0.02	0.02	2.11	.146	1.02	.99	1.06
	I-R	0.00	0.01	0.00	.972	1.00	.97	1.03
	Stress	0.09	0.16	0.31	.575	1.09	.80	1.50
	Shame	0.46	0.21	4.96	.026	1.58	1.06	2.37

Overall Model: $\chi^2(4) = 32.49$ $p < .001$, Nagelkerke's $R^2 = .37$

3.2.8.1 Shame mediated by avoidance. Theoretically, avoidance coping can paradoxically reinforce the experience of intrusive memories, particularly if negative emotions and cognitions regarding the self, like shame, are involved. Given the findings in 4a, 4b and 5 above, a post-hoc mediation was conducted to explore the role of avoidance (mediator) in the relationship between shame (X) and intrusive symptoms (Y) – see Figure 3.4. These results indicated that shame ratings were a significant correlate of avoidance (*a*), and that avoidance was a significant correlate of intrusive symptoms (*b*). These results support the mediational hypothesis. Shame rating was still a significant correlate of intrusive symptoms after controlling for the mediator, avoidance (*c'*), but to a lesser extent than the initial path (*c*). These results are consistent with a partial mediation. Approximately 41% of the variance in intrusive symptoms was accounted for by the variables (R^2 = .41). The indirect effect was tested using a bootstrap estimation approach with 1000 samples (Preacher & Hayes, 2004). These results indicated the indirect coefficient was significant, *B* = 0.73, *SE* = 0.26, 95% CI [0.30, 1.31]. Higher shame scores were associated with approximately 0.73 points higher intrusive symptoms scores as mediated by avoidance symptoms.

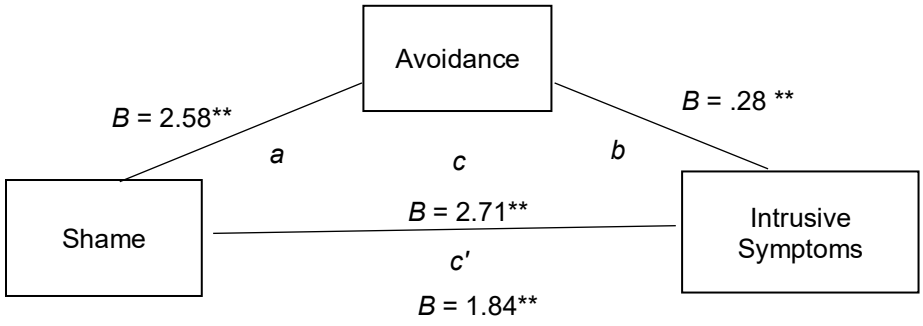

Figure 3.3

Relationship between Shame and Intrusive Symptoms as Partially Mediated by Avoidance Response/Coping

3.2.9 6) Accuracy of Predicting the Presence of Intrusive Memories

Post-hoc ROC analyses were also conducted to further examine the relationship between all relevant primary and secondary variables explored (intrusions, avoidance, shame, guilt, instrumentality-reactivity of the offence, emotionality, stress, trauma symptoms, and posttraumatic cognitions), specifically assessing their accuracy in predicting intrusive memories

in this adult offender population (see Table 3.12). The confidence intervals for each of these individual predictors all overlap, meaning they are likely sampling from the same sampling population parameter. Results of the ROC (interpreted as recommended by Rice & Harris, 2005) revealed that avoidance symptoms, dysphoria during offence, stress rating of offence, and negative cognitions of self each individually predicted intrusive memories (as determined by the defining criteria) with medium accuracy (i.e., corresponding to Cohen's $d > .50$). Intrusion symptoms (which up to this point have been used as the continuous measure of intrusive memories), the total impact of the event, shame regarding offence, guilt regarding offence, and trauma symptoms, all predicted intrusive memories with strong accuracy (i.e., corresponding to Cohen's $d > .80$). These latter factors have greater point precision on their prediction (i.e., less error as reflected by the smaller widths or narrowness of the confidence intervals.

Table 3.12

Accuracy of Intrusive Memories Prediction

	AUC	*SE*	*p*	95% CI	
Intrusion Symptoms	.78	0.05	.000	0.69	0.87
Avoidance Symptoms	.68	0.05	.002	0.58	0.78
Total Impact of Event	.75	0.05	.000	0.66	0.85
Shame Regarding Offence	.80	0.04	.000	0.71	0.89
Guilt Regarding Offence	.77	0.05	.000	0.68	0.87
Instrumentality-Reactivity	.62	0.06	.043	0.51	0.73
Anger During Offence	.57	0.06	.203	0.46	0.69
Dysphoria During Offence	.64	0.05	.016	0.53	0.75
Lack of Planned Control	.56	0.06	.276	0.45	0.68
Stress Rating of Offence/Event	.67	0.05	.003	0.57	0.78
Trauma Symptoms	.71	0.05	.000	0.61	0.81
Negative Cognitions of Self	.68	0.05	.002	0.57	0.78

3.3 Secondary Questions of Interest

3.3.1 7a) Intrusive Memories and Institutional Violence

A total of 27% of participants reported being involved in incident(s) of institutional violence (count ranged from 1 to 17). Given that irritability is sometimes associated with PTSD

symptomology (Ehlers & Clark, 2000; Ehlers & Steil, 1995), it was expected that this may be expressed as anger or a violent response – specifically it was hypothesized that offenders experiencing intrusive symptoms would be more likely to engage in institutional violence (as measured by binary yes/no of this variable – higher scores indicate the occurrence of institutional violence). This hypothesis was supported for the continuous measure of intrusive memories, but not the dichotomous measure (see Table 3.13). Follow-up ROC analyses were conducted on the continuous measures of intrusive memories and the binary measure of institutional violence (with higher scores represent yes/present), revealing a small (AUC = .62; corresponding to Cohen's $d > .30$), but non-significant ($p = .064$), effect for predictive accuracy (see Table 3.14).

3.3.2 7b) Shame and Institutional Violence

It was anticipated that offenders reporting higher levels of shame would have higher rates of institutional violence (Hosser et al., 2008). Correlational analysis examining the relationship between these two variables was not significant; thus, this hypothesis was not supported (see Table 3.13). To further inform our understanding of the relationship between these variables, correlational analyses were also conducted on guilt and the negative cognitions subscales. Lower offence-related guilt scores were correlated with the occurrence of institutional violence. Neither negative cognitions of self or negative cognitions of the world were related to institutional violence.

Table 3.13

Correlations Between Institutional Violence, Intrusive Memories, Shame, Guilt, Instrumentality-Reactivity, and Psychopathy

	Inst. Viol.	Intrusions	IM	Shame	Guilt	Neg Cog Self	Neg Cog World	I-R	Anger	Dysphoria	Lack Planned Control
Institutional Violence	---	.21**	.02	-.10	-.21**	.17	.16	.03	.18	-.16	.01
SRP Total	.39***	.04	.01	-.01	-.35***	.33***	.48***	-.03	.21**	-.11	-.23**
SRP Interpersonal	.23**	.02	.04	.07	-.21**	.37***	.50***	-.01	.18*	-.07	-.17*
SRP Affective	.37***	.03	-.10	-.01	-.26**	.27**	.40***	.01	.20	-.13	.10
SRP Lifestyle	.41***	.08	.03	-.01	-.32***	.28**	.43**	-.01	.21*	.03	-.23*
SRP Antisocial	.29**	.12	.09	.05	-.26**	.25**	.26**	-.06	.09	-.04	-.21**

Note: Inst.Viol. = Institutional Violence; IM = Intrusive Memories (Higher scores of Inst. Viol and IM indicate yes/present)

Neg Cog Self = Negative Cognitions of Self; Neg Cog World = Negative Cognitions of the World; I-R = Instrumentality-Reactivity

*$p < .10$, **$p < .05$, *** $p \leq .001$

3.3.3 8) Psychopathy and Institutional Violence

Participants in the current sample had the following mean psychopathy scores: total score (M = 75.11, SD = 21.52); interpersonal (M = 16.26, SD = 6.91); affective (M = 17.79, SD = 5.69); lifestyle (M = 21.36, SD = 6.23); and antisocial (M = 20.36, SD = 5.33). These scores are on par with the mean scores of a sample of Wisconsin male prison inmates (see Paulhus et al., 2015). Given the facets of psychopathy and their relationship with violence and recidivism, it was expected that higher levels of psychopathy would be related to engagement in institutional violence. Findings from correlational analyses supported this hypothesis across all SRP facet and total scores (see Table 3.13). Follow-up ROC analyses were conducted (see Table 3.14). Total psychopathy scores, as well as affective and lifestyle facet scores, provided the strongest predictive accuracy of institutional violence (corresponding to Cohen's d > .80; Rice & Harris, 2005), whereas interpersonal and antisocial facets predicted the occurrence of institutional violence with medium accuracy (i.e., corresponding to Cohen's d > .50).

Table 3.14

Accuracy of Predicting the Occurrence of Institutional Violence

	AUC	*SE*	*p*	95% CI	
Intrusion Symptoms	.62	0.06	.064	0.51	0.73
Guilt Regarding Offence	.38	0.06	.068	0.25	0.51
SRP Total	.75	0.05	.000	0.65	0.85
SRP Interpersonal	.65	0.06	.026	0.53	0.76
SRP Affective	.76	0.05	.000	0.66	0.86
SRP Lifestyle	.75	0.05	.000	0.66	0.85
SRP Antisocial	.66	0.06	.013	0.54	0.79

Follow-up logistic regression analysis was used to explore which aspect of psychopathy was the most significant predictor of the dichotomous measure of institutional violence (see Table 3.15). A test of the full model against a constant only model was statistically significant, indicating that these predictors as a set reliably distinguished between the presence or absence of institutional violence. *Nagelkerke's* R^2 indicated a moderate relationship between prediction and grouping. Prediction success overall was 79% (92% for absence of institutional violence, and 44% for its presence). The Wald criterions demonstrated that only the affect and lifestyle facets made a significant unique contribution to prediction. The interpersonal and antisocial facets of psychopathy were not significant predictors of this dichotomous measure of institutional

violence once the other facets were accounted for. The EXP(*B*) values in this model indicate that with every one point increase in affect scores, the odds ratio is 1.14 times as large and therefore offenders with flatter affective traits are 1.14 times more likely to engage in institutional violence. Similarly, with every one point increase in lifestyle scores, the odds ratio is 1.17 times as large; therefore, offenders with higher parasitic lifestyle traits are 1.17 times more likely to engage in institutional violence.

Table 3.15

Logistic Regression Results of Psychopathy Facets on Institutional Violence

	B	*S.E.*	Wald	*p*	Exp(B)	95% CI.for EXP(B)	
Interpersonal	-0.10	0.05	3.12	.077	0.91	0.81	1.01
Affect	0.13	0.06	4.34	.037	1.14	1.01	1.28
Lifestyle	0.16	0.07	5.46	.019	1.17	1.02	1.33
Antisocial	0.09	0.06	2.51	.113	1.09	0.98	1.22
Constant	-7.24	1.65	19.31	.000	0.00		
Overall Model: $\chi^2(4) = 24.78$, $p < .001$, *Nagelkerke's* $R^2 = .32$							

3.3.4 9a) Psychopathy, Guilt, and Shame

Given that individuals high in psychopathy are known to possess characteristics contrary to shame, such as glibness, lack of remorse, and lack of empathy, it was expected that there would be a negative relationship between psychopathy and both shame and guilt. Correlational analyses on SRP total and facet scores, revealed that this was true for guilt, but not for shame (see Table 3.13). To further inform our understanding of the relationship between these variables, correlational analyses were also conducted on psychopathy and the negative cognitions subscales. These negative cognition scores were positively correlated with total and facet scores of psychopathy, whereby higher psychopathy scores were related to more endorsement of negative cognitions about the self and the world (see Table 3.13).

3.3.5 9b) Psychopathy and the Instrumentality-Reactivity of the Offence

It was expected that psychopathy may be related to the instrumentality-reactivity of the offence committed (Blais et al., 2014; Cornell et al., 1996; Pollock, 1999). Instrumental violence has been found to be typical of offenders who are high in psychopathy; however, Blais and colleagues (2014) found this connection to be true for the Interpersonal facet only. To examine

this inconsistency, correlational analyses were conducted on the SRP total score, as well as facet scores, and the overall instrumentality-reactivity of the offence and the individual factors (anger, dysphoria, lacking planned control; see Table 3.13). There were no significant relationships between psychopathy scores and the overall instrumentality-reactivity of the offence. Higher total scores of psychopathy were positively correlated with anger, and negatively correlated with lacking planned control, indicating that higher scores in psychopathy were related to feelings of anger during the offence as well as more planning and control of the offence. The interpersonal and lifestyle facets were trending towards being related to anger and planned control during the offence, whereas the antisocial facet had the strongest relationship with planned control during the offence. Follow-up regression analysis of the facet scores on planned control was not significant, $F(4, 95) = 1.76$, $p = .144$, $R^2 = .07$.

3.3.6 9c) Psychopathy and Intrusive Memories

Given the anticipated relationships between psychopathy, the instrumentality-reactivity of the offence, and guilt/shame, it was hypothesized that psychopathy may potentially serve as a protective factor for intrusive memories whereby higher scores on the psychopathy measure would be inversely related to intrusive memories. In order to assess what role psychopathy has on intrusive memories, correlational analyses were conducted on psychopathy and its facets, and both the continuous and dichotomous measures of intrusive memories. Contrary to what was expected, no significant relationships were found between these variables (see Table 3.13); therefore, no further analyses were conducted.

3.4 Recall Perspective Taken for Emotional Events

3.4.1 10) Emotionality, Avoidance and Recall Perspective

There are mixed findings regarding emotionality, the role of avoidance, and which perspective is more likely to be taken when remembering an event (Berntsen et al., 2003; Porter & Birt, 2001; Robinaugh & McNally, 2010). Although specific hypotheses about these relationships were not made, chi-square analyses were conducted on categorical recall perspective (field/mix/observer) and dichotomous emotion and avoidance levels (low/high – based on median-split scores of the scales). None of these relationships were significant at the .05 level (see Table 3.16).

Table 3.16

Chi-Square Examining Relationship Between Emotionality, Avoidance, and Recall Perspective

	Recall Perspective		
	% Field Only	*% Mixed*	*% Observer*
Low Avoidance	53.1	36.7	10.2
High Avoidance	57.1	34.7	8.2
Low Stress	67.4	25.6	7.0
High Stress	45.5	43.6	10.9
Low Anger	57.1	30.6	12.2
High Anger	53.1	40.8	6.1
Low Dysphoria	55.1	36.7	8.2
High Dysphoria	55.1	34.7	10.2

Avoidance: χ^2 (2) = .21, p = .899, *Cramer's V* = .05
Stress: χ^2 (2) = 4.73, p = .094, *Cramer's V* = .22
Anger: χ^2 (2) = 1.79, p = .409, *Cramer's V* = .13
Dysphoria: χ^2 (2) = .14, p = .933, *Cramer's V* = .04

3.4.2 11a) Intrusive Memories and Recall Perspective

We were interested in exploring what perspective is taken when recalling intrusive memories. The relationship between recall perspective and intrusive memories was first explored with chi-square analyses conducted on the categorical recall perspective (field/mix/observer) and dichotomous intrusive memories (yes/no). There was a significant association between intrusive memories and what recall perspective is taken, χ^2 (2) = 8.90, p = .012, *Cramer's V* = .30 (see Table 3.17). Post-hoc examination of the adjusted residuals for this medium effect revealed that a higher than expected proportion of participants experiencing intrusive memories reported a mixed perspective (z = .30), whereas a higher than expected proportion of participants whose memories were not intrusive reported a field perspective (z = .25).

Table 3.17

Recall Perspective for Offence Reported for Total Sample and for Intrusive Memories

Recall Perspective	Total Sample	Participants with IM	No IM
	%	%	%
Field Only	55.1	17.3	37.8
Mix Field/Observer	35.7	22.4	13.3
Observer Only	9.2	3.1	6.1

Note: IM = Intrusive Memories

3.4.3 11b) Intrusive Memories, Emotionality, and Recall Perspective

It was expected that the directionality of the relationship between recall type and intrusive memories may depend on the offender's coping mechanisms (whether attempts at avoidance are made). Given the theoretical relevance of emotion in the relationship between recall perspective and intrusive memories, it was also anticipated that this relationship may vary by the emotions during and after the offence. Therefore, chi-square analyses examining the relationship between recall perspective and intrusive memories were conducted with the different emotions (median-split scores of the scales – low/high) added as layer variables (see Table 3.18).

The results revealed that the significance of the relationship between intrusive memories and recall perspective was dependant on the levels of offence-related shame (i.e., in those with *high shame:* 65% of those with no intrusive memories reported field perspective, while 54% of those with intrusive memories reported mixed perspective). The significance of the relationship between intrusive memories and perspective was also dependant on the levels of offence-related guilt (i.e., in those with *low guilt*: 65% of those with no intrusive memories reported field perspective, while 64% of those with intrusive memories reported mixed perspective); and anger at the time of the offence (i.e., in those *low anger*: 68% of those with no intrusive memories reported field perspective, while 56% of those with intrusive memories reported mixed perspective). The significance of the relationship between intrusive memories and perspective varied by both levels of avoidance symptoms (i.e., in those with *low avoidance* 64% of those with no intrusive memories reported field perspective, while 61% of those with intrusive memories reported mixed perspective; and in those with *high avoidance*: 70% of those with no intrusive memories reported field perspective, while those with intrusive memories reported a

split between field and mixed perspective – both 48%). There was no evidence to suggest that the relationship between intrusive memories and recall perspective varied across levels of dysphoria at the time of the offence or levels of stress ratings. These findings suggest that the relationship between recall and intrusive memories is related to levels of shame, guilt, anger during the offence, and avoidance coping.

Table 3.18

Relationship between Recall Perspective, Intrusive Memories, and Offence-Related Emotions

	Recall Perspective *Field Only* vs. *Mixed* vs. *Observer Only*		
	χ^2	*Cramer's V*	*p*
IM	8.90	.30	.012
IM x Low Shame	1.72	.19	.423
IM x High Shame	6.28	.35	.043
IM x Low Guilt	6.30	.36	.043
IM x High Guilt	3.91	.28	.141
IM x Low Anger	8.48	.42	.014
IM x High Anger	2.50	.23	.287
IM x Low Dysphoria	3.90	.28	.142
IM x High Dysphoria	5.73	.34	.057
IM x Low Avoidance	6.43	.36	.040
IM x High Avoidance	6.69	.37	.035
IM x Low Stress	3.05	.27	.218
IM x High Stress	4.75	.29	.093

Note: IM = Intrusive Memories (higher scores represent yes/present)

CHAPTER 4: Discussion

The current study sought to assess the prevalence of offence-related intrusive memories in a sample of male provincially sentenced offenders, to examine possible factors related to the development of intrusive memories, and to explore various secondary questions of interest regarding psychopathy and institutional violence. Based on the importance of emotionality, distinctiveness of the event, and the clash of the event with the individual's life-script, it was thought that offence-related shame and the reactivity of the offence would contribute to the development of intrusive memories. These kinds of connections are widely accepted in the larger trauma literature but little was known about perpetrator-induced trauma in offender populations. In addition, past research examining offence-related trauma symptoms had been limited to forensic psychiatric patient and/or violent offender populations. The results of the current study regarding intrusive memories, shame, and reactive violence are discussed in turn below. Some additional considerations are explored, as well as limitations, future directions, and the implications of this study.

4.1 Intrusive Memories

A total of 43% of offenders in the current sample reported experiencing intrusive memories of their offence. These memories were recurrent, distressing, and involuntarily triggered. Intrusive memories were reported across various types of crime, some were violent (e.g., homicide, assault), and some were not (e.g., theft, driving under the influence of alcohol). The prevalence rate of intrusive memories in this offender sample was consistent with intrusive memories and PTSD rates found in previous research with forensic psychiatric patients, and serious violent offender populations (Chung et al., 2016; Evans et al., 2007b; Gray et al., 2003; Musker, 2013; Pollock, 1999; Welfare & Hollin, 2015). These numbers reinforce the assertion that offenders do "suffer" with intrusive memories regarding their offence(s). As expected, avoidance symptoms (e.g., not wanting to talk or think about the event, numbing emotions about it, etc.) were associated with the presence of intrusive memories. The role of avoidance and emotion suppression is also consistent with theoretical foundations of PTSD (Ehlers & Clark, 2000; Rauch & Foa, 2006) and past research on offender PTSD (e.g., Chung et al., 2016; Gray et al., 2003).

The current study measured symptoms of trauma (i.e., avoidance and intrusive memories), but did not assess individuals for diagnoses of PTSD as this was beyond the scope. That said, it has been suggested that mean total scores over 27 on the Impact of Event scale are

indicative of a 75% chance of PTSD (Coffey & Berglind, 2006). The mean total score in the current study was 29.08 which lends support to the idea that a large number of participants may have had PTSD. When looking at intrusion and avoidance symptoms, the mean scores in the current study (14.02 and 15.06, respectively) fell between Horowitz and colleagues' (1979) normative sample mean scores of medical students (2.5 intrusion; 8.5 avoidance) and scores of stress clinic patients (21.0 intrusion; 35.3 avoidance). These scores reported in the current study speak to the level of symptom severity in this offender sample. In addition, almost a quarter of participants reported intrusive memories that involved re-experiencing elements, suggesting that they may have been experiencing flashbacks of the offence. It is unclear whether any participants experienced any dissociation symptoms (feeling as if the world, or self, is not real) of their offence, as this was not measured. It is possible that some of the offenders in the current sample had PTSD and that these intrusive memories and flashbacks may be only indicators or symptoms of a bigger problem. Putting the current findings in the context of PTSD may assist in terms of using clinical practice language, assessing severity, and implementing treatment interventions. This study's exploration of intrusive memories in the general context of autobiographical memory and life events provides a greater understanding of the underlying variables/symptoms beyond the realm of strict diagnostic criteria.

Although the present findings suggest that offenders experience intrusive memories about their crimes, it appears that many offenders in this study did not initially seem to be aware of this reality (i.e., the difference noted between their initial self-reports of unwanted distressing memories during the instructions portion of the study compared to their responses and related scores on the actual measures of intrusive memories). This lack of awareness and lack of insight may be related to the amount of shame related to intrusive memories, and the avoidant strategies used to cope with the shame and memories (Chung et al., 2016; Ehlers & Clark, 2000; Gray et al., 2003; Horowitz, 1976; Litz et al., 2009; Rauch & Foa, 2006).

4.2 Offence-Related Shame

As expected, shame was found to contribute the most unique variance in the prediction of intrusive memories, and had greater point precision in prediction, over and above guilt and the other factors in this study. Shame also contributed the most unique variance in avoidance symptoms. Taken together, these findings are consistent with the larger PTSD literature (Ehlers & Clark, 2000; Horowitz, 1976; Rauch & Foa, 2006), as well as perpetrator-induced trauma and moral injury research in veteran populations (Chung et al., 2016; Gray et al., 2003; Litz et al.,

2009). Past studies had failed to examine shame and recommended that it be explored. The current findings, therefore, fill this gap in the literature, and importantly contribute to our understanding of trauma symptomology, such as intrusive memories, in an adult offender population. The negative self-evaluation involved in shame (e.g., being a bad person), and its related pathogenic and destructive nature, is likely what makes shame stand out compared to guilt, which just accounts for the actions (e.g., doing a bad thing). In practice, offenders may report guilt and may have a sense that showing remorse for their actions is an appropriate behavior or feeling to display. Shame, however, may not be something often openly disclosed or expressed by offenders. Rather anger or sadness may be the most obvious feelings (e.g., observable through institutional/community violence or withdrawal), and shame may be the vulnerable underlying state that is being avoided and expressed through these other means. Violence prevention programs work to teach offenders how to manage anger and other emotions; however, the programs do not often ask about shame, and it is perhaps unlikely that offenders will be spontaneously upfront about feelings of shame. This hesitation may be partly due to offenders being unaware of their underlying [suppressed] feelings, or perhaps due to the stigma they fear by admitting shame.

Longitudinal research had suggested that male offenders who are prone to shame may be at an increased risk for recidivism, whereas those prone to guilt are at decreased risk (Hosser et al., 2008). Although recidivism was beyond the scope of the current study, risk for violence was examined in the context of institutional violence. The relationship between shame and institutional violence was not significant. This result may be because there is no relationship, or perhaps it may be due to the more controlled institutional setting, the restricted timeframe assessed (i.e., during current institutionalization), or limitations of self-report (i.e., withheld disclosure of incidents). Psychopathy, on the other hand, was related to both institutional violence and to lower levels of offence-related guilt, which is consistent with the proposition made by Hosser and colleagues above. Although those higher in psychopathy reported less guilt regarding their offence than those lower in psychopathy, they did not report significantly less shame (and interestingly reported more negative cognitions about themselves). This might explain why findings did not support the idea that psychopathy would potentially serve as a protective factor for intrusive memories. Specifically, individuals higher in psychopathy still seemed to experience shame regarding their offence (which is a key factor related to intrusive memories), and are therefore not ‘immune’ to intrusive memories as was previously expected.

Although psychopathy is defined by characteristics that suggest these individuals do not care about others (e.g., glibness, lack of empathy, lack of remorse, manipulation, and antisocial traits), it does not mean that their actions do not make them feel bad about themselves (or perhaps the current participants exaggerated their experience of shame and negative cognitions of themselves as would be perhaps expected of them by social convention). If in fact negative self-evaluation is apparent in offenders with psychopathy, then this can serve to somewhat humanize how they are perceived, and may speak further to the rehabilitation potential for these individuals.

In correctional settings, the discussion and treatment of shame seems to be reserved primarily for sex offenders, and for female offenders who have suffered trauma. Therefore, the identified prevalence of intrusive memories and offence-related shame in this male population sheds light on the need for further attention when it comes to incorporating or addressing it in the context of responsivity for case management, programming modalities, and/or treatment of this population. Whether or not we should target offence-related intrusive memories and shame directly remains a clinical and empirical question. It may be practical and safe for offenders to remain hardened and maintain avoidant coping strategies in order to survive the harsh correctional environment (although it may then come at the cost of limited rehabilitation). Alternatively, given that shame is the more painful self-evaluative emotion linked to hiding or escaping, whereas guilt is more focused on the behavior and is linked to making amends (Tangney, Stuewig, & Hafez, 2011), treatment interventions may seek to transform maladaptive feelings of shame into more functional feelings of guilt. If supports are available to promote the management of the difficult emotions related to intrusive memories in the structured environment of jail, then it may be one of the most ideal places for these individuals to work through their memories and related feelings. In either case, it is important for those working with offenders to be at least aware of the potential for offenders to experience intrusive memories and shame related to their crimes, and keep that in mind when interacting with them, and when developing conceptualizations of them and their behaviors.

Intrusive memories and shame can both be distressing by their very nature, however, consistent with previous research (Jaffe et al., 2015; Musker, 2013), no apparent increase in trauma or distress was observed or reported due to participation. Instead, reviewing some of the commentary made by participants during participation and feedback, further suggests that shame and intrusive memories about offending is an area that offenders would benefit from exploring.

For example, a number of participants reported that although they had some difficulty thinking about things that they have tried to push down, it ended up being good to think about it. Some were even relieved to have the opportunity to share and talk about their experiences. For a number of them, it was the first time they had talked about the particular offence since it happened because of shame and a lack of opportunity. Other comments were related to the offenders' appreciation that I, as a researcher, cared about the impact that the crime had on them. These comments suggest that providing opportunities for discussion and reflection, and that framing questions around the topic of offence-related symptoms or impact, may in itself serve to reduce avoidance and shame in this population. Addressing these symptoms as relevant responsivity factors may serve therefore to enhance rapport with these individuals, and bolster their motivation for change.

4.3 Instrumentality-Reactivity of the Offence

It was expected that an offender's emotional response to his crime, and his related experience of intrusive memories, was likely linked to the distinctiveness and emotionality of the act itself. This speaks to the reactivity-instrumentality of the crime that occurred. Emotions typically discussed in the context of reactive violence have more commonly included anger, and impulsive outbursts of anger, during the commission of the crime (Cornell et al., 1996), and less commonly considered are the dysphoric emotions present (e.g., frustration, sadness, helplessness). It was thought to be important and worthwhile to include these kinds of dysphoric emotions in the I-ROQ measure in order to examine the full range of possible emotions felt at the time of the offence, especially since anger is often the overtly visible expression of more prominent underlying dysphoric emotions (Teyber & McClure, 2011). In the present study, results indicated that crimes that were more reactive in nature, and that specifically involved dysphoric emotions felt at the time, were related to both higher levels of offence-related shame and the presence of intrusive memories. It was expected that anger also would be related to intrusive memories, however, the absence of this finding may provide further support for the relevance of underlying dysphoric emotional components that are distinct to an individual, above and beyond anger.

The results also indicated that the more reactive the crime, the more shame experienced, and the combined effect of both these factors was related to the presence of intrusive memories. This partially mediating role of shame on the relationship between the reactivity of offence and intrusive memories may speak to the emotional needs of these offenders. Specifically, recent

research has identified different treatment needs for offenders based on the instrumentality-reactivity of the offence (Derkzen & Serin, 2015). Derkzen and Serin suggest that offenders who commit reactive violence seem to have greater needs in emotional and interpersonal areas, whereas offenders who commit instrumental violence have greater needs in the areas of criminal associates and attitudes. Putting this perspective into the context of the current study, it may be that shame is one of the emotion-relevant treatment needs for offenders who committed more reactive forms of crime.

In terms of the relationship between crime type and psychopathy, it was expected that crimes that were more instrumental in nature would be related to higher psychopathy scores. This hypothesis was not supported when examining the reactivity-instrumentality continuum; however, looking at the group of individual factors, results suggested that feelings of anger during the offence, as well as more planning and control of the offence, were related to higher psychopathy scores. Past research has argued that a reactive-instrumental dichotomy does not account for the complexity of crimes, specifically in terms of information and emotion processing (Bushman & Anderson, 2001) and with crimes that involve both instrumental and reactive components (Cooper & Yuille, 2007; Cornell et al., 1996). The presence of both anger and planning in the current findings is consistent with Blais and colleagues' (2014) suggestion that psychopathy is equally related to both instrumental and reactive crime. Therefore, individuals who are high in psychopathy may have needs in emotional and interpersonal areas, as well as in the areas of criminal associates and attitudes. It would be interesting for future qualitative researchers to explore whether individuals higher in psychopathy are more likely to express anger rather than dysphoric emotions (due to criminal attitudes and 'appropriate' feelings to express) and how this experience relates to the type of crime committed and the impact the event has on them. Findings from the current study may provide a deeper understanding of those factors involved in, and resulting from, different types of crime (i.e., shame, intrusive memories, psychopathy) and could subsequently further inform treatment planning and rehabilitation targets for offenders.

4.4 Additional Considerations

The various factors assessed in the current study, including shame, guilt, stress ratings, and reactivity of the crime, together accounted for 43% of the variance in intrusive memories, and offered a 65% success of predicting the presence of intrusive memories in this sample. Although these rates are noteworthy and support the hypotheses made in terms of the role that

these emotions and reactions to committing offences play in the development of intrusive memories, they also suggest that there are other factors at play. Past research has identified that individual factors (e.g., IQ, personality, defence styles), social factors (e.g., family and community function/support, stress related to losses, roles and relationships), biological factors (e.g., amygdala and hippocampal processes), and historical factors (e.g., childhood trauma or past victimization) play a role in the development of trauma symptoms (see Andrews et al., 2003; Bisson, 2009; Brewin & Soni, 2011; Briere, et al., 2016; Buckley et al., 2000; Chung et al., 2016). Exploring these additional sources of individual differences was beyond the scope of the current study, and should be given some consideration when interpreting the study findings.

4.4.1 Complex Trauma

Although efforts were made to account for the complexity of trauma, due the limitations previously noted regarding the reliability and interpretation of the TSC measure with this sample, the results reported were without the inclusion of this control. That being said, the findings discussed above should be considered in the greater context of trauma, and with the 'messiness' of trauma in mind. Some of the issues regarding the reliability of the TSC measure may speak to the possible traumatic nature of being incarcerated. Specifically, many participants based their TSC responses on the jail context – and endorsed items typically reported by victims of sexual assault. For example, participants reported poor sleep, loneliness, fear of men, not feeling satisfied with their sex life, unnecessary or over-frequent washing, trouble getting along with others, waking up in the middle of the night, feeling tense all the time, trouble controlling their anger, desire to physically hurt others, and feelings of inferiority. Therefore, by virtue of the living conditions of correctional facilities and the risk of violence by other inmates, the prison environment may be traumatic itself (Edgar, O'Donnell, & Martin, 2011), and this experience may have exacerbated trauma symptom ratings in the current study. This possibility further compounds the complexity and cumulative effect of trauma when already considering whatever previous victimization or offence-related trauma that offenders may have also experienced. Given the complexity and additive effects of trauma on an individual, Briere and colleagues (2016) suggest that trauma treatment or prevention of trauma in such environments may minimize some of the additional suffering associated with being incarcerated. This idea of minimizing suffering, however, speaks to larger considerations in terms of the administrative organization of correctional facilities, the resources available, the condition of the buildings, the training of the staff, and the political slant/priority (i.e., rehabilitation vs. punishment) espoused.

In addition, it is important to consider that previous trauma histories were not assessed in the current study. This omission is noteworthy given that offender populations tend to have high rates of past victimization (Ardino et al., 2013; Wolff & Shi, 2012) and that these kinds of historical factors are related to the development of current trauma symptomology (Briere et al., 2016). Multiple traumas also have been found to be significantly associated with the seriousness of offence committed in female samples (Karatzias et al., 2017). This latter point speaks to the relevance of trauma and shame in the treatment and rehabilitation of male and female offender populations. Shame has been found to be a common consequence of complex trauma (Courtois, 2004). Without previous trauma history and without knowledge of shame related to this history, it can be difficult to parse apart the specific source of the shame assessed in the current study. Even though we assessed shame related to a specific crime (and participants were instructed to respond to offence-related shame), it is possible, and likely, that this is confounded and made more complex by past offences and victimization.

4.4.1.1 Cultural considerations and complex trauma. There are cultural considerations that also need to be discussed when interpreting the current findings in the context of complex trauma. Nearly 60% of the study sample self-identified as Indigenous. Indigenous populations are not only over-represented in the Canadian correctional system (and likely have experienced multiple incarcerations), but they have also historically experienced decades of trans-generational trauma (re: colonization, and residential schools – producing a loss of roles, identity, and culture; broken communities and relationships; family dysfunction; and substance use; Kirmayer, Brass, & Tait, 2000)).

These historical, cultural, and social factors compound the cumulative effect of trauma even further for Indigenous persons in the correctional system. These histories are important to consider in terms of diagnosis and treatment approaches, and we must ask whether it is appropriate or relevant to use Western symptom labels (e.g., intrusive memories) to describe their experiences that are deeply affected by colonization (Kirmayer et al., 2000) . For example, it may be expected that due to their traumatic history, Indigenous participants would be more likely to experience intrusive memories related to their offence. In the current study, however, there were fewer Indigenous participants who reported intrusive memories compared to Caucasian participants (44% and 51%, respectively). It may be that Indigenous peoples are less likely to interpret the memories as distressing, or it may be that they are not traumatic relative to other aspects of their lives. Regardless, we were not in a position to begin exploring "racial"

differences in intrusive memories in the current study as "race" in this instance would only serve as proxy for the effects of colonization and complex trauma (i.e., multifaceted cultural considerations) and this was deemed not to be appropriate. Attempts were made to conduct a culturally sensitive research study by piloting the study items and gathering feedback from Indigenous participants. Although the questionnaire items were not identified as problematic, the general methodology may not have been ideal for members of Indigenous cultures (Kovach, 2015; Moeke-Pickering et al., 2006). Specifically, storytelling is culturally important to this population. A more qualitative study that incorporated their stories may provide us with a more culturally relevant understanding of their offence-related memories and feelings, and how this understanding may relate to their trauma histories (Michell, 1999). Further, putting participants' feelings, memories, or stories in the context of the medicine wheel may be a good example of how to make future studies more culturally appropriate (Moeke-Pickering et al., 2006) and to provide a better understanding of how 'trauma' is perceived. For some cultures, the medicine wheel model connects people to the earth and with the four directions. The idea of the four directions could be used as a way of organizing data, narratives, and storytelling (Moeke-Pickering et al., 2006). Participants were not given anything in return for their participation. This was largely due to institutional considerations (e.g., perceived "coercion," and concerns around contraband items). That being said, given the importance of reciprocity in Indigenous cultures (Michell, 1999), it is recommended that researchers, institutions, and ethics review boards, find a suitable way to honor this custom (e.g., offering tobacco) in future work, particularly if researchers are collecting stories on sensitive topics, such as trauma, through qualitative approaches.

4.4.2 Substance Use

When discussing intrusive memories, emotionality, and coping, the role of substance use also should be considered. The rates of substance use disorders among offender populations are high (Beaudette et al., 2015), and substance use is important to consider both in terms of the offender's mental and emotional state at the time of the crime, and in terms of its role in avoidance or suppression coping strategies. A quarter of the current sample reported being under the influence of drugs or alcohol at the time of the offence, and this rate was even higher when examining the crimes 'causing' intrusive memories. Some participants reported having "blanks" in their memories of the event because of substances, and had pieced together the full version of the event from what the police had said, or what occurred in court. Those under the influence of

drugs or alcohol at the time of the crime reported less planning, a lack of control, and the absence of goals during their offence. This experience speaks to the impulsivity, unpredictability, and disinhibition related to using substances, which is relevant in terms of committing crimes that are seemingly more reactive in nature. Committing crimes under the influence may not be consistent with how individuals view themselves or their world. This may create cognitive dissonance and subsequently produces shame (Festinger, 1957).

In addition to substance use creating shame, substance use also has been used a means of coping with shame (Dearing, Stuewig, & Tangney, 2005; Tangney et al., 2011; Tangney, Stuewig, Mashek, & Hastings, 2011). Specifically, due to its pathogenic effects, shame drives people to want to escape or hide, and this escape is often found in substances. Indeed, substances are often used to regulate intense trauma-related shame (Holl et al., 2017) and other PTSD symptoms (Ullman, Relyea, Peter-Hagene, & Vasquez, 2013). In a study examining female offenders (Kreis, Gillings, Svanberg, & Schwannauer, 2016), shame appeared to both precede and be a consequence of substance abuse, and was found to be central to ongoing negative interpersonal experiences, addictions, and offending pathways. Although intrusive memories and shame may not be risk factors per se, substance abuse has been identified as a treatable dynamic risk factor for recidivism; as such it is a targeted criminogenic need when working with offenders in correctional and community settings (Bonta & Andrews, 2007). Given that many individuals use substances to cope with or avoid the aforementioned feelings and experiences, intrusive memories and shame therefore may be seen as precipitating factors to other known risks/needs, and also may be seen as internal responsivity factors that may be worth considering in case management.

4.5 Theoretical Implications

Many theoretical foundations of PTSD have been based on victims and veterans, and the development of fear structures and fear responses from witnessing or experiencing threats – violence or trauma (Ehlers et al., 2002; Ehlers & Clark, 2000; Foa & Kozak, 1986; Horowitz, 1976; Lang, 1977). This same literature had placed trauma symptoms in terms of the *special mechanism* view (i.e., dual systems, poor integration, processing failure, and compromised encoding). The literature has since expanded to consider perpetrator-induced trauma (MacNair, 2015), and also has begun to consider the dimensionality approach to trauma and the characteristics of complex trauma (Briere et al., 2016). Given that fear or violence were not necessarily present in the crimes reported by the current sample, the recurrent and distressing

nature of some these offence-related memories may not best be explained by fear or poor integration, but instead explained as a consequence of the enhanced accessibility of these events in the offenders' autobiographical memory (Berntsen & Rubin, 2008). Specifically, the schema-deviance and the distinctiveness of the offence, combined with the emotional enhancement involved, are central to development of intrusive memories of these events. This is consistent with the *basic mechanism* view of understanding intrusive memories in terms of associative recall, and as extreme subclasses of involuntary memories (Berntsen, 1996, 2009; Kvavilashvili, 2014). Regardless of which view is taken regarding trauma memories (special or basic mechanism), addressing aversive emotions like anger and shame through cognitive techniques and restructuring will likely result in better outcomes (Foa, Riggs, Massie, & Yarczower, 1995). These outcomes may include reduced avoidance, as well as readiness for further treatment (i.e., addressing intrusive memories), improvement in overall institutional behavior, and a reduction in engaging in risk-related behaviors (e.g., substance use and aggression).

4.6 Limitations and Future Directions

The current study is not without its limitations, and these should be kept in mind when interpreting these findings. These limitations relate to the methodology, the sample, and the data itself. These are discussed in turn below, with considerations and suggestions explored for future research.

4.6.1 Methodological Limitations

Data were collected from offender self-reports, without corroboration of file information. This omission is a limiting factor, partly because this population does not have a reputation of honesty and of being forthcoming, and it is possible that their responses were not truthful. It was for that reason that rapport building was of increased importance to the researcher. Efforts were made by the researcher to engage participants, and to make this engagement collaborative and voluntary. Participants were not pressured or made to feel like they were mandated to participant given their custody status. Participants were given space to share their thoughts throughout and elaborate if they wanted to without being restricted by the questionnaire format. It is hoped that rapport provided a context for the provision of honest reports of emotions and memory characteristics. If any malingering was to have occurred, it is anticipated to have been more likely for responses related to institutional violence and psychopathy. It is uncertain whether counts of institutional violence in the current study were accurate as a result of offenders' willingness to disclose fights, or minimized due to offenders' hesitation to report this type of

information (especially if there were not caught or charged for it). In addition, there may be concerns that a self-report measure of psychopathy may not be a valid indicator of psychopathic traits due to the core features involved in psychopathy (e.g., lying, deception, manipulation). A recent meta analysis examining other self-report measures of psychopathy (Ray et al., 2013), however, has provided support for the validity of these measures, and alleviates some concerns regarding positive response bias for items related to psychopathy. For the most part, it felt like the answers provided in the current study were authentic, and the researcher used clinical judgement when it felt sensible to clarify question items or reiterate the response provided in order to ensure its accuracy. Future research could attempt to access institution file information (i.e., criminal history, police report of offence event, victim statements, incidents of institutional violence, file-rated psychopathy) to ensure the reliability of the responses provided, and also allow researchers to gather additional information (e.g., treatment/program engagement).

The interpretation of the current results also may be limited by the measures used. For example, the measure of event stress was a single-item scale. While this was appealing to use because it is short, the cost is that its psychometric properties are unknown and it may have limited reliability (Furr, 2011). In addition, a number of the measures used (e.g., for posttraumatic cognitions, intrusion and avoidance symptoms, trauma-related shame) were primarily developed/used with samples who were victims of trauma (as opposed to perpetrator-induced trauma). To address this limitation, the measures were adapted for this study with the focus of the questioning being on the offence, which is a strategy adopted in some past trauma offender research (e.g., Gray et al., 2003; Welfare & Hollin, 2015). Although future offender research may benefit from offender-specific measures/tools on perpetrator-induced trauma and related emotions, the similarity between the current findings and those found in the general PTSD literature (i.e., regarding the role of shame, emotionality of events, and avoidance), as well as the strong Cronbach alphas for inter-item consistency, speaks to the relative adequacy of these adaptations for the current study. Replication studies may help to further elucidate these potential measurement limitations. In addition, there were some differences in results obtained by the dichotomous and continuous measure of intrusive memories (i.e., findings on institutional violence, anger during the offence, and lack of planned control during the offence), whereby the continuous measure picked up on significant differences while the dichotomous measure did not in these instances. While both measures were highly correlated, these disparate results may speak to the enhanced variability when using continuous measures (i.e., making it a more sensitive

measure). Finally, findings related to the instrumentality-reactivity of the offence may also have been limited by the continuous nature of IRO-Q. While the total score was purposely included to capture the continuum of crime types, it may be more accurate to consider the duality of the construct. Specifically, instead of assessing crimes on a continuum, future research may wish to consider using separate metrics – separating instrumentality from reactivity and measuring crimes on both independently (i.e., offences could be high on both, low on both, or high on one versus the other).

4.6.2 Sample Limitations

The present findings may be limited by the size of the sample. Although the current sample allowed for the examination of intrusive memories in this population, we were unable to conduct more advanced analyses (e.g., structural equation modelling) which may have provided a more in depth understanding of the causal paths/relationships between these variables of interest. Gaining access to offenders was challenging in itself, and collecting data from over 100 offenders in person was not a small task; however, if possible, future research should aim for a larger sample (i.e., 200+) in order to have the flexibility to further explore the factors involved in the development and maintenance of offence-related intrusive memories.

The findings also may be limited by the specific population accessed (provincial vs federal; sentenced vs. remanded), and the types of offences committed by this population. Offenders are provincially sentenced for crimes with sentences that are '2-years less a day,' whereas federal sentences are ordered for crimes with higher sentences (2+ years). In other words, federal offences tend to be more severe and serious in nature. Some of the offenders in the current sample had previously served federal sentences for past crimes, and some chose to focus on these crimes for the purpose of the study. The current study therefore involved offenders who committed violent and non-violent offences. The prevalence rates of intrusive memories in this sample was similar to past literature examining offence-related PTSD and intrusive memories in forensic psychiatric and/or violent offender populations (Chung et al., 2016; Evans et al., 2007b; Gray et al., 2003; Musker, 2013; Pollock, 1999; Welfare & Hollin, 2015)). Given the context of these other populations (i.e., not having capacity to know actions were wrong due to mental illness, and the extent of violence involved, respectively), it may not be surprising that these individuals were impacted by the event in those samples. However, the similar findings in the current study of provincially sentenced offenders offer support that further enhances the generalizability of the past findings. Although a federal sample would have

consisted of offenders who committed more serious offences, we expect that similar results would be found in that population. Replication of the current findings in a federal population would be worthwhile.

This current study only included sentenced offenders, and not remanded populations. Remanded offenders are those who are in custody but with their charges still pending (i.e., in custody awaiting a court ruling regarding their guilt). Given the ongoing legal involvement of these individuals, excluding them was a limitation placed on the current study by the Ministry, in order to limit the potential and foreseeable legal issues or complications that may come up through participation. It is anticipated that remanded offenders would report similar emotions and symptoms related to their crimes; however, the current findings cannot be generalized to remand populations at this time. If future researchers were to examine intrusive memories in remanded populations, it should be noted that the veracity of their reports may be less reliable given their potential "not guilty" pleas.

The current study only consisted of male participants, which may be a limiting factor when looking to generalize the findings to female offenders. Although the focus on male offenders was in part due to ease of access (i.e., larger male offender pool), it also was in an effort to place the current study in the context of existing findings. Specifically, the existing research on offence-related trauma had examined these data in predominantly male samples, and the current study sought to address those gaps identified in this previous literature by using a mixed violent/non-violent offender sample, and by examining the relationship between shame and reactivity of crime. It could be speculated that similar results would be found in a female sample; however, this hypothesis would need to be specifically explored. Research has identified that female offenders tend to present with higher rates of PTSD and have more complex histories of lifetime trauma (Komarovskaya, Loper, Warren, & Jackson, 2011; Kubiak, 2004). Female offenders have also reported higher rates of interpersonal trauma, whereas male offenders have reported higher rates of witnessing harm or violence (Komarovskaya et al., 2011). These kinds of differences are noteworthy, and the role of complex trauma may play an even bigger part in the experiences of female offenders. Females who have experienced multiple traumatic events may be more likely to commit serious offences (Karatzias et al., 2017); therefore, it is critical for future researchers to also explore the factors involved in offence-related intrusive memories in females, and to assess and meet their offence-related needs.

4.6.3 Limitations with Data

The current findings also may be limited in terms of content of the data collected. Although participants provided responses to over 200 questions covering a range of pertinent topics, there are other areas that were not explored or details that could not be extracted. For example, past trauma histories and past criminal histories were not assessed. Some participants had commented that they wished that I considered their history and hardships. Others wished that I asked about their motivations to commit the crime (i.e., why they ended up doing what they did, what led up to it – for example broke/nothing to lose, grief, substance use), or that I should also have asked about the impact or consequences of the crime (e.g., losing their drivers licence, job, etc.). A qualitative approach may have facilitated these kinds of questions and discussions, and also may have provided a rich and full narrative of the content of intrusive memories and details pertaining to the shame experienced. By addressing some of these questions, we may have been able to make connections regarding the role of motivations/consequences on factors such as anger, shame, sense of injustice, antisocial attitudes, and intrusive memories. This information could shed light on how offenders view themselves, their autonomy, their future, and how that might influence their participation in treatment.

Qualitative analyses may also serve as a more reliable source for coding the recall perspective taken for these memories. In the current study, participants reported how they saw themselves in the memories (field, observer, or mixed). There were more reports of the field perspective among those participants without intrusive memories, whereas there were more reports of a mix of field/observer in those with intrusive memories. Coding the perspective through their narratives would not only substantiate these findings, but would also allow for further exploration into the role of shame, emotionality of the event, and avoidance on recall perspective for intrusive memories. Future researchers should consider expanding on the current study using qualitative means, as this would be relevant both in terms of enhancing our understanding of the factors involved in offence-related intrusive memories, and in terms of the inclusion of culturally important aspects (e.g., Indigenous stories, as previously noted).

Lastly, the current study involved a design that relied solely on self-reports. As a result, this study did not assess follow-up symptoms, recidivism, or treatment engagement. Trauma symptoms have been previously identified as a potential barrier in correctional treatment programs (Martin et al., 2014). It would therefore be worthwhile for future researchers to assess

the effects of offence-related trauma and shame on treatment engagement and on participation in correctional programs. To gain a better understanding of the implication of this research, it would also be interesting to conduct a pre-post study that 1) measured offence-related shame and intrusive memories, 2) implemented an intervention to reduce shame, and then 3) re-tested the symptoms post-intervention. Trauma symptomology and shame have been linked to recidivism in past studies (Hosser et al., 2008; Kubiak, 2004), however, to our knowledge this has not yet been examined in terms of offence-related trauma. Future studies could extend this work and follow offenders into the community to assess recidivism, and the long-term effects of offence-related trauma symptoms and shame.

4.7 Conclusion

Offenders experience intrusive memories about the offences they commit. When offending behaviors conflict with the individuals' moral beliefs and their expectations about themselves, this may create shame, and may enhance the negative impacts of the crime. Given that offenders are not often asked about their crimes, beyond the context of court pleas, risk assessment, or violence prevention programming, it is possible that there are a number of individuals in correctional settings suffering from trauma related to their own offence and who have not yet been identified by clinical services (Welfare & Hollin, 2015). We may be doing a disservice to offenders and the larger public community if we fail to conceptualize and address the potential psychological, behavioral, and interpersonal impacts of perpetrating offences. There are clinical implications of this research in terms of assessing and treating this population. Specifically, if questions regarding experiencing symptoms related to the crime, or other traumas, are not asked, and these symptoms are not assessed/addressed, then we may not see a reduction in symptoms or an improvement in behavior because we are not targeting the right trauma/symptom. Intake assessments for trauma symptomology (crime-related or from other traumas) may be fruitful (e.g., quick screening to flag for follow-up). This, however, speaks to a larger issue of resources and funding needed to supply mental health support. It also brings up whether jail is used for rehabilitation or punishment (and whether there is political and public support for offender mental health).

In conclusion, both intrusive memories and shame are areas of offender mental health that receive little attention in current offender management. They are responsivity factors that could interfere with programming and rehabilitation efforts (e.g., affecting rapport, coping abilities, and motivation and engagement levels,). Intrusive memories and shame are also

relevant to keep in mind for risk management, specifically these symptoms may be precipitating factors for related risk factors (i.e., substance abuse, aggression), and should be considered when evaluating patterns of violence, and creating relapse prevention plans, both in the institution and in the community (Hosser et al., 2008; Kubiak, 2004). The current study has filled some gaps identified in past research and in doing so has enhanced our understanding of what is involved in adult offenders' intrusive memories. As such, emotions such as shame may be worthwhile to target to enhance the wellbeing of offenders, and to inform offender management plans for the provision of mental health services. Addressing intrusive memories has implications beyond helping abate offenders' symptoms. Taken together, the larger implications of this study may also relate to the protection of correctional staff by institutional violence, and for overall public safety if the needs of offenders are adequately met.

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Appendix A: Key Reference Details

Table A.1

Key Reference Details: Country, Sample Type, Gender, Methods, Findings

Authors	*Year*	*Country*	*Study Topic/Focus*	*Sample Population*	*# of Participants (Gender)*	*Methods/Tools Used*	*Main Findings*
Berntsen	1996	Denmark	Involuntary memories	Students	14 (7 male)	Structured diaries recording of involuntary memories	• Triggered by cues • Mood congruent, recent, and distinct • Rated emotionally positive • Generally, not repetitive
Berntsen & Rubin	2008	Denmark	Recurrent involuntary memories	*Study 1* Tourists/survivors of Tsunami in Southeast Asia	118 (50 male)	Centrality of Event Scale + PTSD Checklist	• Not limited to clinical populations or to negative emotional experiences • Have same pattern of accessibility as autobiographical memories in general
				Study 2 General population	1504	Telephone survey	
				Study 3 Undergraduates with history of trauma	9 (3 male)	PTSD Checklist, structured diary	

Chung et al.	2016	China	Homicide-related PTSD	Homicide perpetrators + non-violent perpetrators	304 (all male)	Questionnaire (PTSD diagnostic Scale, Defense Styles, Emotional Control Scale, Alexithymia Scale-20)	• 44% of homicide perpetrators met criteria for PTSD • Interrelationship between alexithymia, defence styles, + emotional suppression related to PTSD
Cooper & Yuille	2007	Canada (BC)	Memories for reactive & instrumental violence ([in]voluntary distinction not made)	Federal violent offenders	150 (all male)	Interview + Questionnaire (Affect Grid, Memory Characteristics)	• Instrumental violence better recalled than reactive violence
Crisford et al.	2008	UK	Trauma symptoms	Forensic psychiatric patients	45 (43 male)	Questionnaire (Detailed Assessment of PTSD, Trauma-Related Guilt Inventory, GBAI-R Guilt, PANAS)	• Higher levels of guilt cognitions associated with higher levels of trauma symptomatology

	Ehlers et al.	2002	UK	Intrusive memories	Survivors of trauma (sexual abuse, road traffic accidents, paramedics)	305 (128 male)	Intrusion Questionnaire + Interviews	• Consisted of stimuli that were present right before the traumatic event or shortly before moments that had largest emotional impact
	Evans et al.	2007 a & b	UK	Intrusive memories	Violent young offenders	105 (all male)	Semi-structured interview + Questionnaire (e.g., Perceived Physical Threat Scale, Emotions During Assault Scale, Self-Blame Scale, PTSD Symptom Scale-Interview)	• 46% reported current intrusive memories for violent offence • 6% met criteria for PTSD • Associated with lower antisocial beliefs, greater helplessness, fear, negative view of the self, and self-blame

	Gray et al.	2003	UK	PTSD symptoms	Forensic psychiatric patients	37 (32 males)	Interview + IES, Beck Depression Inventory, State Anxiety Inventory	• 33% met criteria for PTSD related to offence • 54% had significant PTSD symptoms related to offence • Symptoms greater for violent offences and feelings of regret
	Michael et al.	2005	UK	Intrusive memories & PTSD	Victims of assault	*Study 1* 81 (48 male) *Study 2* 73 (40 male)	Interview	• Distress caused by intrusive memories, their ‘‘here and now’’ quality, and their lack of a context predicted PTSD severity
	Musker	2013	Australia	PTSD	Forensic psychiatric patients (Most found NCRMD)	39 (32 male)	Interviews (CAPS, PCL)	• Identified on average 8 major stressful events • 33% had PTSD • Crime most common area of stress (41%)

Papanastassiou et al.	2004	UK	PTSD symptoms	Forensic psychiatric patients	19 (16 male)	CAPS interview	• 58% lifetime prevalence of PTSD following homicide • 21% partial PTSD
Pollock	1999	Ireland	PTSD symptoms + Violence type	Homicide perpetrators	80 (all male)	Interviews	• 52% met criteria for current PTSD diagnosis • Reactive violence associated with 95% of these diagnosed cases
Schlagman & Kvavilashvili	2008	Germany/ UK	Involuntary memories	Undergraduate students	*Study 1* 37 (14 male) *Study 2* 44 (19 male)	Voluntary & involuntary recall tasks + Autobiographical memory questionnaire + Diary (only in *Study 2*)	• Involuntary memories more specific, retrieved faster, and likely to be triggered by negative cues

Spitzer et al.	2001	Germany	PTSD and sub-syndromal variants	Forensic psychiatric patients	53 (51 male)	CAPS interview + Modified PTSD Symptom Scale	• 64% exposed to at least one trauma • 17% met diagnostic criteria for PTSD • 15% suffered from partial PTSD • 9% reported criminal offence as most traumatic event
Welfare & Hollin	2015	UK	Trauma-related symptomology	Young offenders convicted of serious violent offences	34 (all male)	Semi-structured interviews using the Trauma History Interview, Intrusions and Ruminations Interview, + IES-R	• 42-50% reported varying levels of traumatic symptomatology related either to their childhood or to their offense • 44% reported distressing intrusion symptoms related to their offence • 75% of those who had murdered experienced more intense and distressing intrusions

Appendix B: Internal Posting

UNIVERSITY OF SASKATCHEWAN

PhD RESEARCH STUDENT COMING TO DISCUSS YOUR THOUGHTS & FEELINGS ABOUT YOUR CRIME

Study is looking to see if offenders experience unwanted and stressful thoughts about their crime.

Confidentiality: Your information will be kept private.

Your participation in this study is completely voluntary. ***Whether you choose to participate or not will not affect your sentence or your clinical treatment.***

IF INTERESTED PLEASE LET AN INSTITUTION STAFF MEMBER KNOW!

This study has been approved by the University of Saskatchewan Ethics Committee for Behavioral Research (#15-300), and the Saskatchewan Ministry of Justice – Corrections & Policing.

Appendix C: Consent Form

UNIVERSITY OF SASKATCHEWAN

Participant Consent Form

Project Title: Offender Thoughts of Their Crimes: Exploring the Factors Involved in the Experience of Persistent and Unwanted Thoughts

Researchers: This study is being done by Annik Mossiere (annik.mossiere@usask.ca, a PhD student in clinical psychology at the University of Saskatchewan under the supervision of Dr. Tammy Marche (tmarche@stmcollege.ca; 306-966-8076), department of psychology (St. Thomas More College, U of S).

Purpose: The researchers are looking at offender thoughts about their crimes. We want to find out if offenders experience persistent and unwanted thoughts (also known as intrusive memories) about their crimes. We also want to see if there is any connection between violent crimes, how offenders feel about the crime, and how this affects their thoughts.

Procedures: If you decide to participate in this study, you will be asked to complete a number of paper and pencil questionnaires. They include questions about your thoughts about a crime that you identify (e.g., your experience, your emotions, your beliefs, etc. – see sample questions below). You'll also be asked to provide basic information, such as you age, race, education level, index offence, mental health diagnoses, and institutional violence). These questionnaires will take about 40 to 60 minutes to finish. You will fill out the questionnaires privately in a room in the institution with the researcher or a research assistant. You'll also be given a chance at the beginning and end of the study to share your thoughts on any aspect of the study, the forms, and the questions. This may be used to help us understand our findings, or to find you extra support if needed.

Your participation in this study is completely voluntary. You can choose not to answer any particular question, and if you don't understand any question you can ask about it at the time. You may stop participating in the research project for any reason, at any time, without

telling the researcher the reasons why or getting any penalty. ***Whether you choose to participate or not will not affect your sentence or your clinical treatment.***

Sample questions:

- I had dreams about it

0	1	3	5
Not at all	Rarely	Sometimes	Often

- I stayed away from reminders of it

0	1	3	5
Not at all	Rarely	Sometimes	Often

- If others knew what happened to me, they would not like me

0	1	2	3
Not true of me	Somewhat true of me	Mostly true of me	Completely true of me

- My feelings were out of my control

1	2	3	4	5
Disagree		Neutral		Agree

- During the offence I felt angry

1	2	3	4	5
Disagree		Neutral		Agree

Please feel free to ask any questions about the procedures and/or goals of the study.

Funded by: Social Sciences and Humanities Research Council of Canada, and the Centre for Forensic Behavioural Science and Justice Studies.

Potential Risks & Benefits: Persistent and unwanted thoughts are upsetting to people who have them. We don't expect that participation in this study will cause you any further stress or suffering beyond what you might already be going through. Although completing questionnaires can create

some stress, most people participating in research studies that ask about unwanted thoughts find it to be a positive experience actually, and they typically don't regret participating.

If you begin to feel upset or stressed, we'll let the on-shift correctional officer and an appropriate member of your case management team know. By participating in this study, you might find some benefit in getting the chance to think about things you might not ordinarily be able to. And if you do get upset while participating in this study, you would get the chance to seek the appropriate help you need upon your release to the community (e.g., psychologist, elder). You will *not* be paid to participate.

Confidentiality: Your information will be kept private. Your name will not be on the questionnaires or on the notes taken by the researcher. The Consent Forms will be kept separately from the questionnaires, so it will not be possible to connect your name with your answers. Your responses will be grouped together with other people's responses, and all personal information will be removed.

Correctional staff may know that you are participating in this study, however, your participation and responses will not influence your care or sentence time, and the institution staff will not be informed of your responses to the study. Please *do not* disclose any criminal activity that has not already been disclosed elsewhere, as the researcher may have a duty to report it.

The results of this research will be used in the student-researcher's PhD and may be presented at conferences and published in journals. The information we collect will be securely stored by the researcher for a minimum of five years after results have been published. When the data are no longer required, it will be destroyed.

Right to Withdraw: If you wish to stop participating, any questionnaires that you have finished will be automatically destroyed. Your right to stop and remove your data from the study will apply until all of the participants' questionnaires have been added together in a file.

Follow up: To get a summary of the results from this study, please contact the researcher, Annik Mossiere, or the Principal Investigator, Dr. Tammy Marche, using the information at the top of page 1. Results will be available once the study is completed (Spring 2018).

Questions or Concerns: If you have any questions or concerns regarding this study or your rights as a participant, please feel free to contact the researchers using the information at the top of page 1. This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board (#15-300, ethics.office@usask.ca; (306) 966-2975; toll free (888) 966-2975).

Statement of Disclosure: You understand that the information you provide is confidential, and will never be revealed to anyone except under the following circumstances: If you disclose information about plans to harm yourself or others, information concerning any unknown emotional, physical or sexual abuse of children, or information about any other criminal activities not already known to authorities, the researcher is required to report this information to the appropriate authorities.

Name of Participant	*Signature*	*Date*

Consent: Your signature below means that you agree to participate in this study, and that you have been provided with enough information to make that decision. It also means that you have read and understood the research study described above, and you have had a chance to have your questions answered.

Name of Participant	*Signature*	*Date*

Researcher's Signature	*Date*

Appendix D: Debriefing Form

UNIVERSITY OF SASKATCHEWAN

Participant Debriefing Form

Project Title: Offender Thoughts of Their Crimes: Exploring the Factors Involved in the Experience of Persistent and Unwanted Thoughts

Thank you for participating in this study. This form explains the purpose of our study and why we are interested in this issue.

The purpose of this research was to gain a better understanding of offenders' thoughts of their crimes. We were specifically interested in persistent and unwanted thoughts (also known as intrusive memories). In the questionnaire package, we asked you a number of questions about how you felt, and what you remember about a specific event. We were interested in examining how emotions like shame could affect thoughts. We were also interested to see if the type of violence committed (impulsive and emotional vs. planned and with a goal in mind) influence whether these types of thoughts occur.

We expect that a large number of offenders experience persistent and unwanted thoughts. We predict that those who committed an emotional and impulsive crime, and who feel shame from it, will be more likely to experience persistent and unwanted thoughts about the event. We expect that offenders who are high in psychopathic traits will be less likely to experience persistent and unwanted thoughts. We also predict that offenders who experience these types of thoughts may be more likely to get violent within the institution and have difficulty making progress in their correctional treatment programs.

We hope that by increasing our understanding of persistent and unwanted thoughts in offenders, we will be better able to identify them and address them, which is important for both offender rehabilitation, as well as offender and staff safety in the institution.

To learn more you can contact the researchers involved in this study:

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Should you have any ethical concerns, please contact:

- Behavioural Research Ethics Office, University of Saskatchewan, 306-966-2975 or toll free 1-888-966-2975.
- Dr. Gordon Sarty, Head of Department of Psychology, University of Saskatchewan, Tel. 306-966-2321

It is possible that thinking about a specific crime, and remembering the event and your emotions about it, might be upsetting for you. If this study has caused you any emotional distress, please let us know. We will inform the on-shift correctional officer and your case manager at the institution. You may also wish to seek out the chapel, or an Aboriginal Liaison Officer or Elder for support.

This study has been approved by the University of Saskatchewan Ethics Committee for Behavioral Research (#15-300).

Appendix E: Instructions Provided Prior to Completing the Questionnaire

INSTRUCTIONS

People who have committed a violent crime can remember the event in different ways. Some people have *memories of parts of the crime that just pop into their head when they do not want them to*. These are usually of specific moments from before, during or after the incident that *somehow got stuck in their head and keep coming back*. These thoughts are of part of what actually happened at the time, rather than your thoughts about what has happened since, such as being in prison because of the crime.

1. **Do you sometimes get such unwanted thoughts of a crime you committed?**
   YES or NO

2. **Think of a crime you committed**
   - ➔ If **YES** to the question about think about the criminal event that keeps popping into your head
   - ➔ If **NO** to the question above, just think about a crime that has been the most important for you

3. **Take a minute now to think, and let me know once you have it in your mind**
4. **What kind of offence was it?**
5. **What do you call this event?**

6. **Remember it, and keep it in mind as you answer all the questions**

Appendix F: Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979)

On _____ you experienced _____

(Date) (Significant event/offence)

Below is a list of comments made by people after significant life events. Now keeping in mind _____ please circle a number for each item indicating how frequently these comments were true for you *during the past 7 days or other agreed time period*. If they did not occur during that time, please circle the *"not at all" (0)*

		0	*1*	*3*	*5*
		Not at all	*Rarely*	*Sometimes*	*Often*
1.	I thought about it when I didn't mean to	0	1	3	5
2.	I avoided letting myself get upset when I thought about it or was reminded of it	0	1	3	5
3.	I tried to remove it from memory	0	1	3	5
4.	I had trouble falling asleep or staying asleep, because of pictures or thoughts about it that came into my mind	0	1	3	5
5.	I had waves of strong feelings about it	0	1	3	5
6.	I had dreams about it	0	1	3	5
7.	I stayed away from reminders of it	0	1	3	5
8.	I felt as if it hadn't happened or it wasn't real	0	1	3	5
9.	I tried not to talk about it	0	1	3	5
10.	Pictures about it popped into my mind	0	1	3	5
11.	Other things kept making me think about it	0	1	3	5
12.	I was aware that I still had a lot of feelings about it, but I didn't deal with them	0	1	3	5
13.	I tried not to think about it	0	1	3	5
14.	Any reminder brought back feelings about it	0	1	3	5
15.	My feelings about it were kind of numb	0	1	3	5

Appendix G: Autobiographical Memories Questionnaire (AMQ; Rubin, Boals, & Berntsen, 2008; Rubin, Schrauf, & Greenberg, 2003)

Below is a list of statements related to _____ that you identified at the beginning of the questionnaire. Please circle a number for each item indicating how true these are for you.

		1 *Not at all*	*3* *Vaguely*	*5* *Distinctly*	*7* *As clearly as if it were happening right now*
1.	While remembering the event, I can see it in my mind. (See)	1	3	5	7
2.	While remembering the event, I know the setting where it occurred (Setting)	1	3	5	7
3.	While remembering the event, I can hear it in my mind. (Hear)	1	3	5	7
4.	While remembering the event, I can smell it. (Smell)	1	3	5	7

		1 *Not at all*	*3* *Vaguely*	*5* *Distinctly*	*7* *As much as any memory*
5.	The memory changed my mood. (Mood change)	1	3	5	7
6.	It comes to me in words or in pictures as a coherent story. (Story)	1	3	5	7
7.	My memory comes to me in pieces with missing bits. (Pieces)	1	3	5	7
8.	The event in my memory is a central part of my life story. (Life story)	1	3	5	7

9.	Since it happened, I have thought or talked about this event. (Rehearsal)	1 *Not at all*	3 *Sometimes*	5 *As often as any event in my life*	7 *More often than other events in my life*
10.	This memory has come to me out of the blue, without my trying. (Involuntary)		1 *Not true* *(I only remember when I try to)*		3 *True*
11.	Was this memory cued by the environment, thoughts, a mix, or voluntary. (Cued by)	1 *Environment*	3 *Thoughts*	5 *Mix*	7 *Voluntary memory (not cued)*

		1 *Totally Disagree*	*3* *Somewhat Disagree*	*5* *Somewhat Agree*	*7* *Totally Agree*
12.	While remembering the event, the memory is distressing to me (distressing)	1	3	5	7
13.	These memories persist even when I try to push them out of my mind (persistent)	1	3	5	7
14.	These memories reoccur in mind a number of times (recurrent)	1	3	5	7
15.	While remembering the event, I feel as though I am reliving it. (Reliving)	1	3	5	7

Appendix H: Emotional Experiences Questionnaire – Phenomenological characteristics (EEQ; Porter & Birt, 2001)

Please think back upon _____ that you had identified at the beginning of the questionnaire, and answer the following questions in an honest and sincere way.

1. ***Stress Ratings***

Indicate the level of stress associated with the event in question	1 *Not at all stressful*	2	3	4	5	6	7 *Extremely traumatic*

2. ***Sensory Component***

When you remember the thoughts:

Do you **see** anything in the memory	*Yes*	*No*
Do you **hear** anything in the memory	*Yes*	*No*
Do you **smell** anything in the memory	*Yes*	*No*
Do you **touch** anything in the memory	*Yes*	*No*
Do you **taste** anything in the memory	*Yes*	*No*

3. ***Vantage Point***

When you remember the memory, can you see yourself in the memory image?	*Yes*	*No*	*Not sure*
Please specify:	1 *I can never see myself in the memory*	2 *the memory changes so that I can see myself in the memory image only some of the time*	3 *I can always see myself in the memory*

Appendix I: Posttraumatic Cognitions Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999)

We are interested in the kind of thoughts which you may have had after you experienced _____. Below are a number of statements that may or may not be representative of your thinking. Please read each statement carefully and tell us how much you AGREE or DISAGREE with each statement. People react to significant events in many different ways. There are no right or wrong answers to these statements.

		1 Totally disagree	*2 Disagree very much*	*3 Disagree slightly*	*4 Neutral*	*5 Agree slightly*	*6 Agree very much*	*7 Totally agree*
1.	The event happened because of the way I acted.	1	2	3	4	5	6	7
2.	I can't trust that I will do the right thing.	1	2	3	4	5	6	7
3.	I am a weak person.	1	2	3	4	5	6	7
4.	I will not be able to control my anger and will do something terrible.	1	2	3	4	5	6	7
5.	I can't deal with even the slightest upset.	1	2	3	4	5	6	7
6.	I used to be a happy person but now I am always miserable.	1	2	3	4	5	6	7
7.	People can't be trusted.	1	2	3	4	5	6	7

8.	I have to be on guard all the time.	1	2	3	4	5	6	7
9.	I feel dead inside.	1	2	3	4	5	6	7
10.	You can never know who will harm you.	1	2	3	4	5	6	7
11.	I have to be especially careful because you never know what can happen next.	1	2	3	4	5	6	7
12.	I am inadequate.	1	2	3	4	5	6	7
13.	If I think about the event, I will not be able to handle it.	1	2	3	4	5	6	7
14.	The event happened because of the sort of person I am.	1	2	3	4	5	6	7
15.	My reactions since the event mean that I am going crazy.	1	2	3	4	5	6	7
16.	I will never be able to feel normal emotions again.	1	2	3	4	5	6	7
17.	The world is a dangerous place.	1	2	3	4	5	6	7
18.	Somebody else would have stopped	1	2	3	4	5	6	7

	the event from happening.							
19.	I have permanently changed for the worse	1	2	3	4	5	6	7
20.	I feel like an object, not like a person.	1	2	3	4	5	6	7
21.	Somebody else would not have gotten into this situation.	1	2	3	4	5	6	7
22.	I can't rely on other people.	1	2	3	4	5	6	7
23.	I feel isolated and set apart from others.	1	2	3	4	5	6	7
24.	I have no future.	1	2	3	4	5	6	7
25.	I can't stop bad things from happening to me.	1	2	3	4	5	6	7
26.	People are not what they seem.	1	2	3	4	5	6	7
27.	My life has been destroyed by the trauma.	1	2	3	4	5	6	7
28.	There is something wrong with me as a person.	1	2	3	4	5	6	7
29.	My reactions since the event show that I am a lousy coper.	1	2	3	4	5	6	7

30.	There is something about me that made the event happen.	1	2	3	4	5	6	7
31.	I feel like I don't know myself anymore.	1	2	3	4	5	6	7
32.	I can't rely on myself.	1	2	3	4	5	6	7
33.	Nothing good can happen to me anymore.	1	2	3	4	5	6	7

Appendix J: Trauma-Related Shame Inventory (TRSI; Øktedalen, Hagtvet, Hoffart, Langkaas, & Smucker, 2014)

Individuals who experience significant events/offences often have many different types of reactions. Below are a number of statements that describe thoughts and feelings that people sometimes have about themselves. Please read each statement carefully, and decide how much it applies to you check the option that best describes how much the statement is true for you over the past week.

		0 *Not true of me*	*1* *Somewhat true of me*	*2* *Mostly true of me*	*3* *Completely true of me*
1.	As a result of my _____, I have lost respect for myself	0	1	2	3
2.	Because of what happened, others find me less desirable	0	1	2	3
3.	I am ashamed of myself because of what happened	0	1	2	3
4.	As a result of my _____, others have seen parts of me that they want nothing to do with	0	1	2	3
5.	As a result of my _____, I cannot accept myself	0	1	2	3
6.	If others knew what happened, they would view me as inferior	0	1	2	3
7.	If others knew what happened, they would be disgusted with me	0	1	2	3
8.	I am ashamed of the way I behaved during my _____	0	1	2	3
9.	I am so ashamed of what happened that I sometimes want to escape from myself	0	1	2	3
10.	As a result of my _____, I find myself less desirable	0	1	2	3
11.	I am ashamed of the way I felt during my _____.	0	1	2	3
12.	If others knew what had happened, they would look down on me	0	1	2	3
13.	As a result of my _____, there are parts of me that I want to get rid of	0	1	2	3
14.	If others knew what happened, they would not like me	0	1	2	3

15.	Because of my _____, I feel inferior to others	0	1	2	3
16.	If others knew what happened, they would be ashamed of me	0	1	2	3
17.	If others knew what happened, they would find me unacceptable	0	1	2	3
18.	As a result of my _____ , a part of me has been exposed that others find shameful	0	1	2	3
19.	If others knew how I behaved during my _____, they would be ashamed of me	0	1	2	3
20.	My _____ has revealed a part of me that I am ashamed of	0	1	2	3
21.	As a result of my _____, I don't like myself	0	1	2	3
22.	If others knew how I felt during my _____, they would be ashamed of me	0	1	2	3
23.	Because of what happened, I am disgusted with myself	0	1	2	3
24.	I am so ashamed of what happened that I sometimes want to become invisible to others	0	1	2	3

Appendix K: Gudjonsson Blame Attribution Inventory – Revised – Guilt Feeling Attribution Subscale (GBAI-R; Gudjonsson & Singh, 1989)

Please think back to _____ that you had identified at the beginning of this questionnaire, and answer the statements below describing your thoughts and feelings about yourself in relation to this offence.

	1 Strongly Disagree	*2*	*3*	*4*	*5*	*6*	*7 Strongly Agree*
1. I feel very ashamed of the crime I committed	1	2	3	4	5	6	7
2. I am constantly troubled by my conscience for the crime I committed	1	2	3	4	5	6	7
3. I will never forgive myself for the crime I committed	1	2	3	4	5	6	7
4. *I feel no remorse or guilt for the crime I committed	1	2	3	4	5	6	7
5. It is definitely not in my nature to commit crimes	1	2	3	4	5	6	7
6. The crime I committed was very much out of character	1	2	3	4	5	6	7
7. I hate myself for the crime I committed	1	2	3	4	5	6	7
8. I am better off because I was caught[3]	1	2	3	4	5	6	7
9. I constantly have the urge to punish myself for the crime I committed	1	2	3	4	5	6	7
10. I fear that people will never accept me because of the crime I committed	1	2	3	4	5	6	7
11. *I have no need to feel ashamed of what I did	1	2	3	4	5	6	7

[3] Re-worded original wording from Gudjonsson & Singh, 1989 article: *I would have been better off if I had been caught*.

12.	*I feel annoyed that I was caught	1	2	3	4	5	6	7
13.	*There is no such thing as an innocent victim in my case	1	2	3	4	5	6	7
14.	*I should not punish myself for what I did	1	2	3	4	5	6	7
15.	I have no serious regrets about what I did	1	2	3	4	5	6	7
16.	I would very much like to make amends for what I did	1	2	3	4	5	6	7
17.	I sometimes have nightmares about the crime I committed	1	2	3	4	5	6	7
18.	I deserve to be severely punished for the crime I committed	1	2	3	4	5	6	7

*Items reverse coded – higher scores reflecting more guilt

Appendix L: Instrumentality-Reactivity of the Offence Questionnaire (I-ROQ)

Please think back upon _____ that you had identified at the beginning of the questionnaire, and answer the degree to which you DISAGREE or AGREE with the following statements. There are no right or wrong answers to these statements, so please answer them in an honest and sincere way.

		1	*2*	*3*	*4*	*5*
		Disagree		*Neutral*		*Agree*
1.	*The offence was planned	1	2	3	4	5
2.	*I had a goal in my when I committed the offence (I was trying to achieve something)	1	2	3	4	5
3.	The event was out of my control	1	2	3	4	5
4.	My offence was largely motivated by emotions in the moment	1	2	3	4	5
5.	I was provoked by the victim	1	2	3	4	5
6.	*I offended because had the opportunity to gain something from it (e.g., money, sex, etc.)	1	2	3	4	5
7.	My feelings were out of my control	1	2	3	4	5
8.	I offended because the victim aggravated me	1	2	3	4	5
9.	*The victim was a stranger (I had never met them before)	1	2	3	4	5
10.	I could not control my thoughts	1	2	3	4	5
11.	*The event/offence happened just the way I had planned it	1	2	3	4	5

	During the offence I felt:	*1*	*2*	*3*	*4*	*5*
		Disagree		*Neutral*		*Agree*
12.	Angry	1	2	3	4	5
13.	Frustrated	1	2	3	4	5
14.	Hatred	1	2	3	4	5
15.	Insulted	1	2	3	4	5
16.	Impulsive	1	2	3	4	5
17.	Helpless	1	2	3	4	5
18.	Sad	1	2	3	4	5
19.	Betrayed	1	2	3	4	5
20.	Inferior	1	2	3	4	5
21.	*Happy	1	2	3	4	5
22.	Ashamed	1	2	3	4	5
23.	Embarrassed	1	2	3	4	5
24.	Afraid	1	2	3	4	5
25.	*Calm	1	2	3	4	5

*Items reverse coded – with higher scores reflecting more reactive crimes.

Appendix M: Self-Report Psychopathy Scale – Short Form (SRP-SF; Paulhus, Neumann, & Hare, 2015)

---------- *Scale not included due to Copyright Restrictions* ---------

Items are representative of, and related to, the features outlined in the Psychopathy Checklist-Revised (Hare, 2003). The SRP scales were organically designed to assess the four facets of psychopathy (Hare & Neumann, 2008), specifically interpersonal manipulation; affective callousness; an erratic lifestyle; and overt antisociality. Participants were asked to rate the extent to which they agree with various statements about themselves using a 5-point Likert scale (1 = *disagree strongly* to 5 = *agree strongly*).

Appendix N: Trauma Symptom Check-list 40 (TSC-40; Briere, 1996))

How often have you experienced each of the following in the last two months?

		Never			***Often***
1.	Headaches	0	1	2	3
2.	Insomnia (trouble getting to sleep)	0	1	2	3
3.	Weight loss (without dieting)	0	1	2	3
4.	Stomach problems	0	1	2	3
5.	Sexual problems	0	1	2	3
6.	Feeling isolated from others	0	1	2	3
7.	"Flashbacks" (sudden, vivid, distracting memories)	0	1	2	3
8.	Restless sleep	0	1	2	3
9.	Low sex drive	0	1	2	3
10.	Anxiety attacks	0	1	2	3
11.	Sexual overactivity	0	1	2	3
12.	Loneliness	0	1	2	3
13.	Nightmares	0	1	2	3
14.	"Spacing out" (going away in your mind)	0	1	2	3
15.	Sadness	0	1	2	3
16.	Dizziness	0	1	2	3
17.	Not feeling satisfied with your sex life	0	1	2	3
18.	Trouble controlling your temper	0	1	2	3
19.	Waking up early in the morning and can't get back to sleep	0	1	2	3
20.	Uncontrollable crying	0	1	2	3
21.	Fear of men	0	1	2	3
22.	Not feeling rested in the morning	0	1	2	3
23.	Having sex that you didn't enjoy	0	1	2	3
24.	Trouble getting along with others	0	1	2	3
25.	Memory problems	0	1	2	3
26.	Desire to physically hurt yourself	0	1	2	3

27.	Fear of women	0	1	2	3
28.	Waking up in the middle of the night	0	1	2	3
29.	Bad thoughts or feelings during sex	0	1	2	3
30.	Passing out	0	1	2	3
31.	Feeling that things are "unreal”	0	1	2	3
32.	Unnecessary or over-frequent washing	0	1	2	3
33.	Feelings of inferiority	0	1	2	3
34.	Feeling tense all the time	0	1	2	3
35.	Being confused about your sexual feelings	0	1	2	3
36.	Desire to physically hurt others	0	1	2	3
37.	Feelings of guilt	0	1	2	3
38.	Feelings that you are not always in your body	0	1	2	3
39.	Having trouble breathing	0	1	2	3
40.	Sexual feelings when you shouldn't have them	0	1	2	3

Appendix O: Demographic Information

1. **Age:**

2. **Race:**

3. **Education Level:**

4. **Mental health diagnosis:**

5. **Index offence:**

6. **Institutional or community violence:**
   (Estimated count of incidents)

Appendix P: Correlations Controlling for Trauma Symptoms

Table P.1

Partial Correlations between Intrusive Memories, Shame, Guilt, Instrumentality-Reactivity, and Recall Perspective, when Controlling for Trauma Symptom.

	Shame	Guilt	Instrumentality-Reactivity	Recall Perspective
Intrusions	.40** (.58**)	.29* (.41**)	.21* (.39**)	.06 (.11)
Intrusive Memories	.40** (.51**)	.40** (.47**)	.04 (.19)	.13 (.17)
Shame	--	.72** (.75**)	.17 (.36**)	.06 (.11)
Guilt	--	--	.11 (.24*)	.06 (.09)
Instrumentality	--	--	--	-.10 (-.04)

Note: Values in brackets are correlations before partialling out trauma symptoms

*$p < .05$, **$p < .001$